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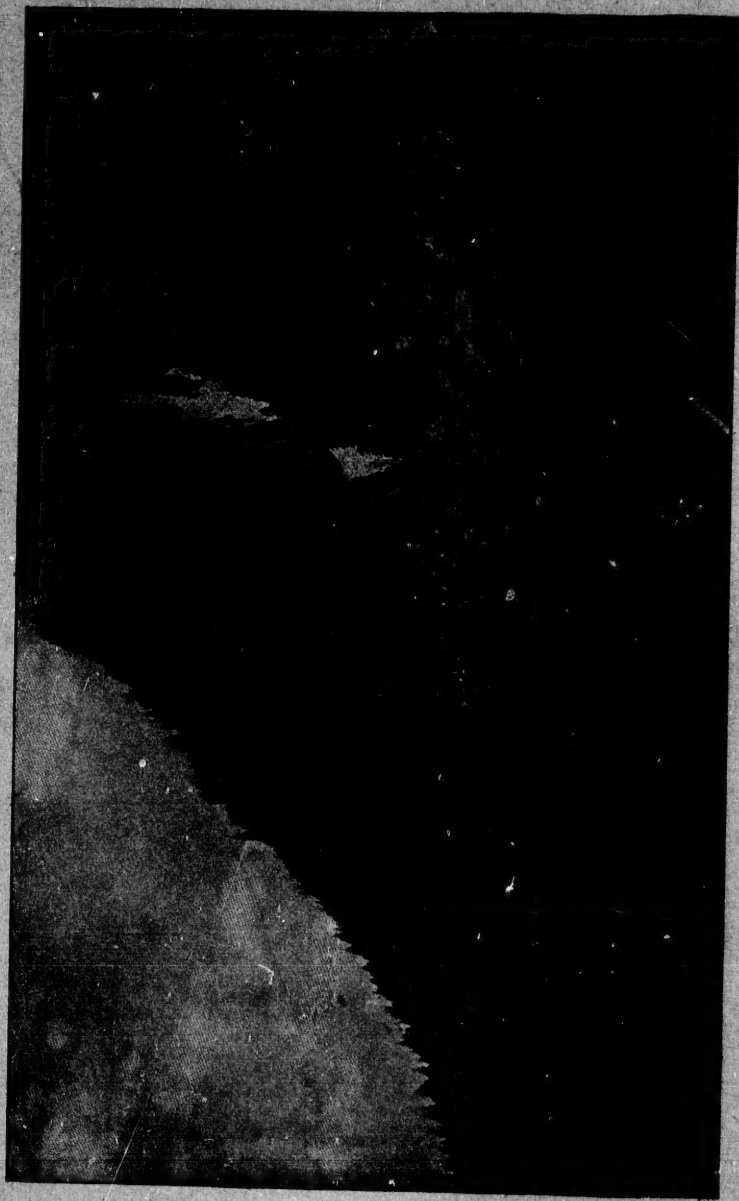
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THE



JUNEAU CITY.

GOLDEN ALASKA

A COMPLETE ACCOUNT TO DATE

OF THE

YUKON VALLEY

*ITS HISTORY, GEOGRAPHY, MINERAL AND OTHER
RESOURCES, OPPORTUNITIES AND
MEANS OF ACCESS*

BY

ERNEST INGERSOLL,

(Formerly with the Hayden Survey in the West)

AUTHOR OF

"KNOCKING 'ROUND THE ROCKIES" "THE CREST OF THE CONTINENT,"
ETC., AND GENERAL EDITOR OF RAND, McNALLY &
Co.'s "GUIDE BOOKS."

CHICAGO AND NEW YORK:
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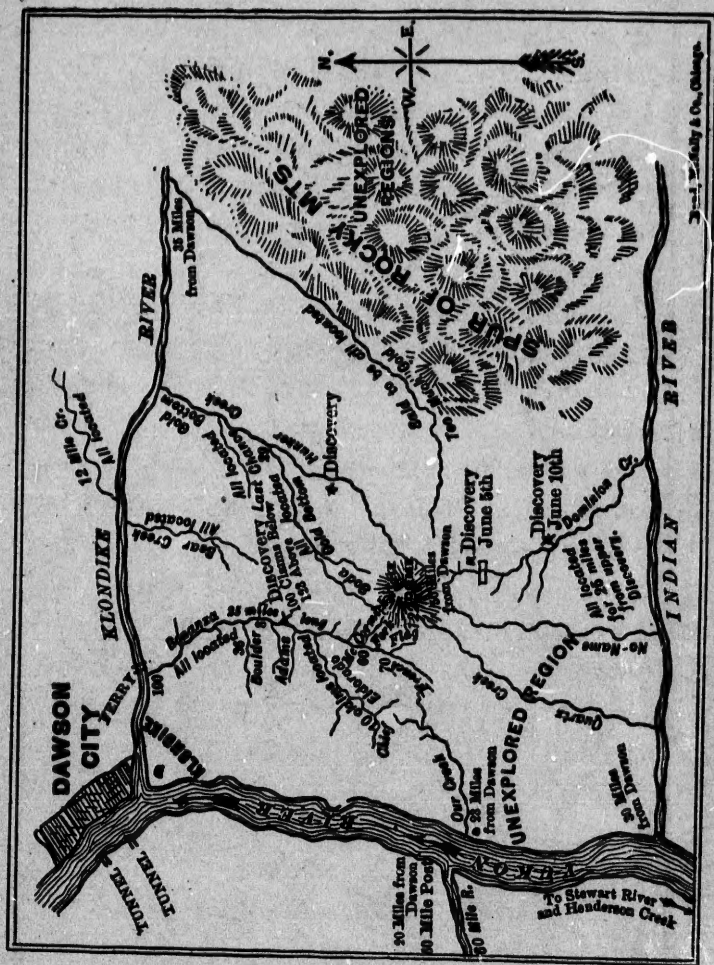
Mrs. JULIA CORRIGAN,
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INTRODUCTION.

To make "a book about the Klondike" so shortly after that word first burst upon the ears of a surprised world, would be the height of literary impudence, considering how remote and incommunicado that region is, were it not that the public is intensely curious to know whatever can be said authentically in regard to it. "The Klondike," it must be remembered, is, in reality, a very limited district—only one small river valley in a gold-bearing territory twice as large as New England; and it came into prominence so recently that there is really little to tell in respect to it because nothing has had time to happen and be communicated to the outside world. But in its neighborhood, and far north and south of it, are other auriferous rivers, creeks and bars, and mountains filled with untried quartz-ledges, in respect to which information has been accumulating for some years, and where at any moment "strikes" may be made that shall equal or eclipse the wealth of the Klondike placers. It is possible, then, to give here much valuable information in

regard to the Yukon District generally, and this the writer has attempted to do. The best authority for early exploration and geography is the monumental work of Capt. W. H. Dall, "Alaska and its Resources," whose companion, Frederick Whymper, also wrote a narrative of their adventures. The reports of the United States Coast Survey in that region, of the exploration of the Upper Yukon by Schwatka and Hayes of the United States Geological Survey, of Nelson, Turner and others attached to the Weather Service, of the Governors of the Territory, of Raymond, Abercrombie, Allen and other army and navy officers who have explored the coast country and reported to various departments of the government, and of several individual explorers, especially the late E. J. Glave, also contain facts of importance for the present compilation. The most satisfactory sources of information as to the geography, routes of travel, geology and mineralogy and mining development, are contained in the investigations conducted some ten years ago by the Canadian Geological Survey, under the leadership of Dr. G. M. Dawson and of William Ogilvie. Of these I have made free use, and wish to make an equally free acknowledgment.

It will thus be found that the contents of this pamphlet justified even the hasty publication which

the public demands, and which precludes much attention to literary form; but an additional claim to attention is the information it seeks to give intending travelers to that far-away, very new and as yet unfurnished region, how to go and what to take, and what are the conditions and emergencies which they must prepare to meet. Undoubtedly the pioneers to the Yukon pictured the difficulties of the route and the hardships of their life in the highest colors, both to add to their self-glory and to reduce competition. Moreover, every day mitigates the hardships and makes easier the travel. Nevertheless, enough difficulties, dangers and chances of failure remain to make the going to Alaska a matter for very careful forethought on the part of every man. To help him weigh the odds and choose wisely is the purpose of this little book.

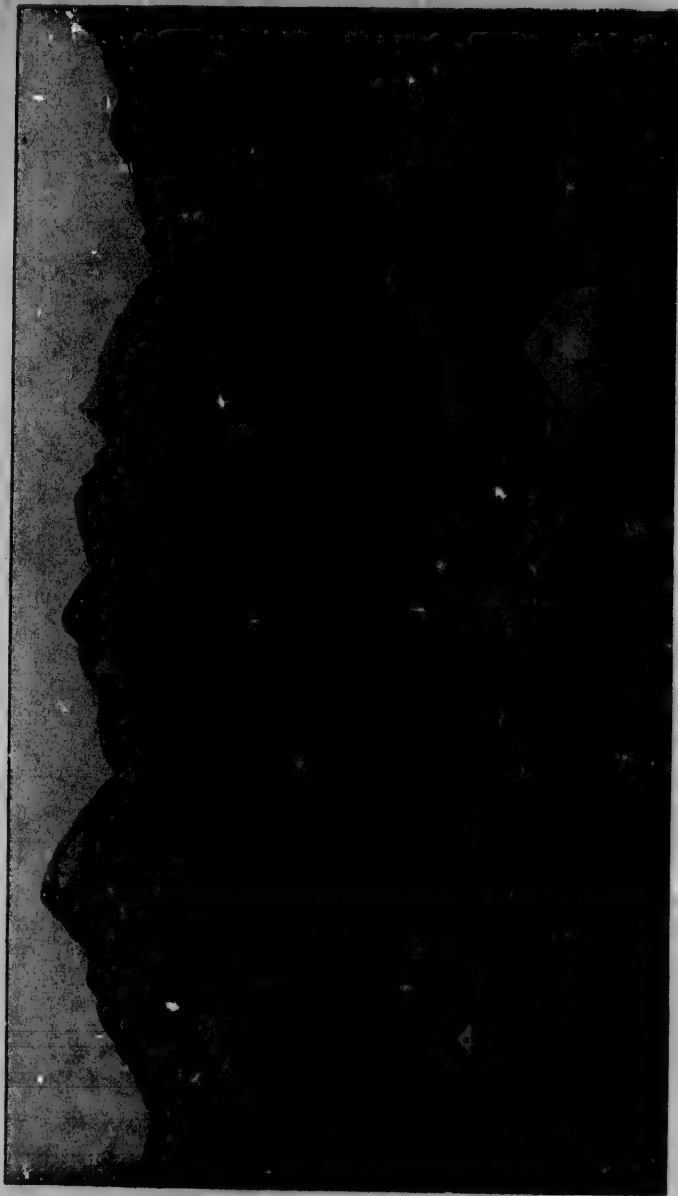


MAP OF THE UPPER YUKON AND KLONDIKE REGIONS.

W. H. & Co., Chicago.

MAP OF THE UPPER YUKON AND KLONDIKE REGIONS.





BIRD'S-EYE VIEW OF SITKA — FROM BARANOFF CASTLE.

GOLDEN ALASKA.

ROUTES TO THE YUKON GOLD-FIELDS.

The gold-fields of the Yukon Valley, at and near Klondike River, are near the eastern boundary of Alaska, from twelve to fifteen hundred miles up from the mouth of the river, and from five to eight hundred miles inland by the route across the country from the southern Alaskan coast. In each case an ocean voyage must be taken as the first step; and steamers may be taken from San Francisco, Portland, Ore., Seattle, Wash., or from Victoria, B. C.

The overland routes to these cities require a word.

1. To San Francisco. This city is reached directly by half a dozen routes across the plains and Pocky Mountains, of which the Southern Pacific, by way of New Orleans and El Paso; the Atch., Top. & Santa Fé and Atlantic & Pacific, by way of Kansas City, and across northern New Mexico and Arizona; the Burlington and Denver & Rio Grande, by way of Denver and Salt Lake City; and the Union Pacific and Southern Pacific, by way of

Omaha, Ogden and Sacramento, are the principal ones.

2. To Portland, Oregon. This is reached directly by the Union Pacific and Oregon Short Line, via Omaha and Ogden; and by the Northern Pacific, via St. Paul and Helena, Montana.

3. To Seattle, Wash. This city, Tacoma, Port Townsend and other ports on Puget Sound, are the termini of the Northern Pacific Railroad and also of the Great Northern Railroad from St. Paul along the northern boundary of the United States. The Canadian Pacific will also take passengers there expeditiously by rail or boat from Vancouver, B. C.

4. To Vancouver and Victoria, B. C. Any of the routes heretofore mentioned reach Victoria by adding a steamboat journey; but the direct route, and one of the pleasantest of all the transcontinental routes, is by the Canadian Pacific Railway from Montreal or Chicago, via Winnipeg, Manitoba, to the coast at Vancouver, whence a ferry crosses to Victoria.

Regular routes of transportation to Alaska are supplied by the Pacific Coast Steamship Company, which has been dispatching mail steamships once a fortnight the year round from Tacoma to Sitka, which touch at Juneau and all other ports of call. They also maintain a service of steamers between

San Francisco and Portland and Puget Sound ports. These are fitted with every accommodation and luxury for tourist travel; and an extra steamer, the Queen, has been making semi-monthly trips during June, July and August. These steamers would carry 250 passengers comfortably and the tourist fare for the round trip has been \$100.

The Canadian Pacific Navigation Company has been sending semi-monthly steamers direct from Victoria to Port Simpson and way stations the year round. They are fine boats, but smaller than the others and are permitted to land only at Sitka and Dyea.

Such are the means of regular communication with Alaskan ports. There has been no public conveyance north of Sitka, except twice or thrice a year in summer in the supply steamers of the Alaskan commercial companies, which sailed from San Francisco to St. Michael and there transferred to small boats up the Yukon.

Whether any changes will be made in these schedules for the season of 1898 remains to be seen.

Special steamers.—As the regular accommodations were found totally inadequate to the demand for passage to Alaska which immediately followed the report of rich discoveries on Klondike Creek,

extra steamers were hastily provided by the old companies, others were fitted up and sent out by speculative owners, and some have been privately chartered. A score or more steamships, loaded with passengers, horses, mules and burros (donkeys) to an uncomfortable degree, were thus dispatched from San Francisco, Puget Sound and Victoria between the middle of July and the middle of August. An example of the way the feverish demand for transportation is found in the case of the Willamette, a collier, which was cleaned out in a few hours and turned into an extemporized passenger boat. The whole 'tween decks space was filled with rough bunks, wonderfully close together, for "first-class" passengers; while away down in the hold second-class arrangements were made which the mind shudders to contemplate. Yet this slave-ship sort of a chance was eagerly taken, and such space as was left was crowded with animals and goods. Many persons and parties bought or chartered private steamers, until the supply of these was exhausted by the end of August.

Two routes may be chosen to the gold fields:

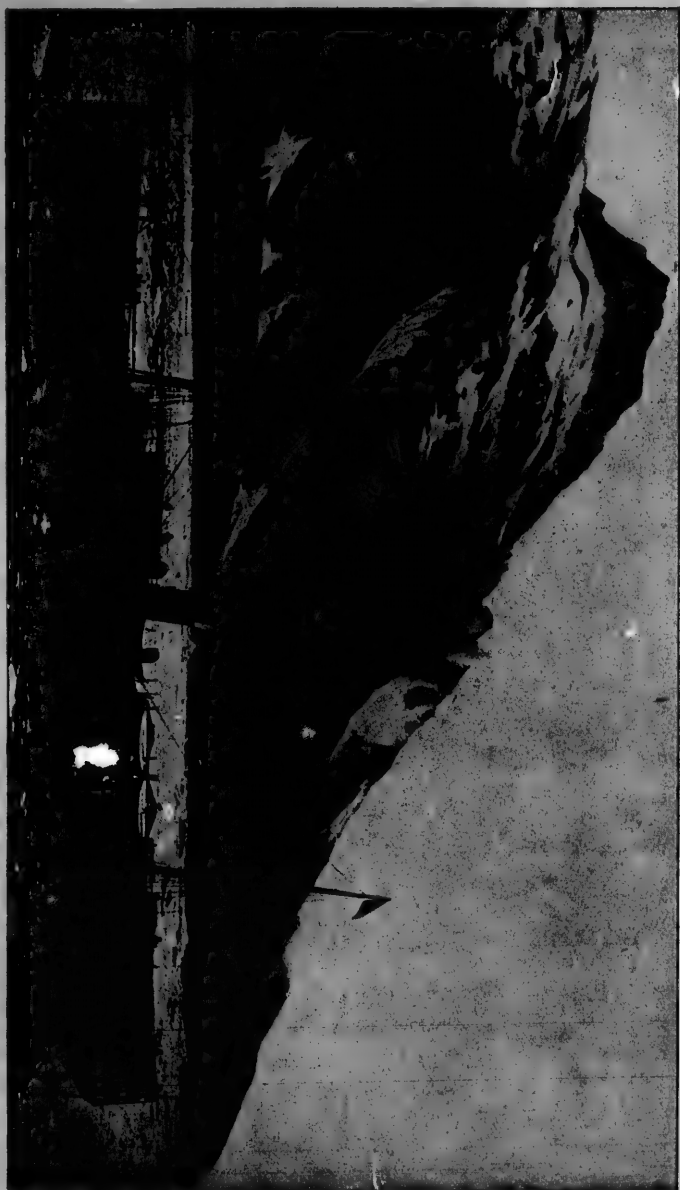
1. By way of the Yukon River. This is all the way by water, and means nearly 4,500 miles of voyaging.
2. By way of the new ports of Dyea or Skagway,

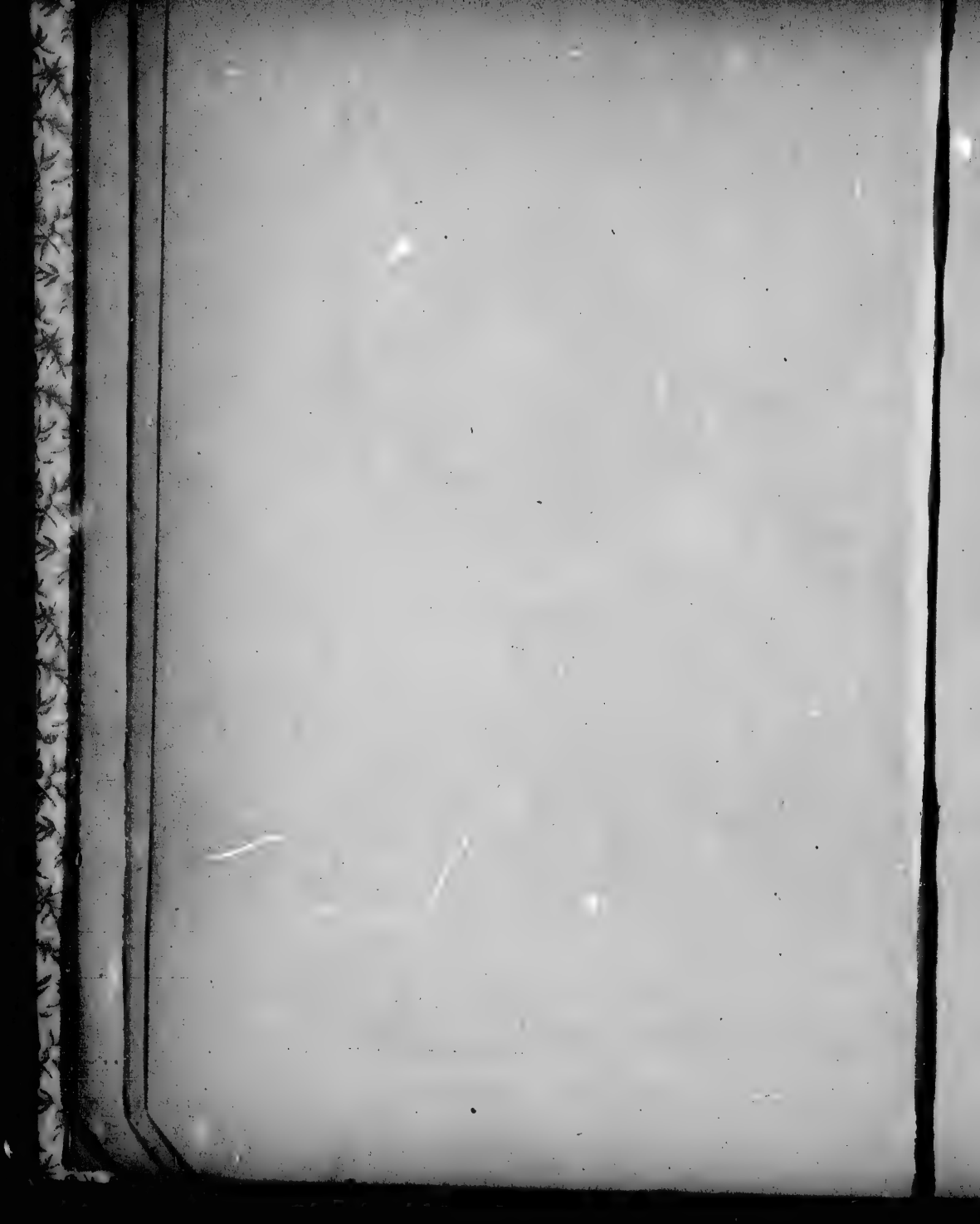
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GLACIER BAY.

STEAMSHIP QUEEN.





over mountain passes, afoot or a-horseback, and up the upper Yukon River, navigating the lakes and rivers by raft, skiff and steamboat.

To describe these routes is the next task—first, that by way of St. Michael; and second, up the Yukon River.

Route via St. Michael and the Yukon River.—This begins by a sea-voyage, which may be direct or along the coast. The special steamers (and future voyages, no doubt) usually take a direct course across the North Pacific and through the Aleutian Islands to St. Michael, in Norton Sound, a bight of Bering Sea. The distance from San Francisco is given as 2,850 miles; from Victoria or Seattle, about 2,200 miles. The inside course would be somewhat longer, and would follow the route next to be described as far as Juneau and Sitka, then strike northwest along the coast of St. Michael.

This town, on an island near shore in Norton Sound, was established in 1835 by Lieut. Michael Tébenkoff, of the Russian navy, who named it after his patron saint. Though some distance to the north of the Yukon entrance, St. Michael has always been the controlling center and base of supplies for the great valley. The North American Trading and Transportation Company and the Alaska Commercial Company have their large ware-

houses here, and provide the miners with tools, clothing and provisions. Recently the wharf and warehouse accommodations have been extended, and the population has increased, but if, as is probable, any considerable number of men are stopped there this fall by the freezing of the river, and compelled to pass the winter on the island, they will find it a dreary, if not dangerous, experience.

The vessels supplying this depot can seldom approach the anchorage of St. Michael before the end of June on account of large bodies of drifting ice that beset the waters of Norton Sound and the straits between St. Lawrence Island and the Yukon Delta.

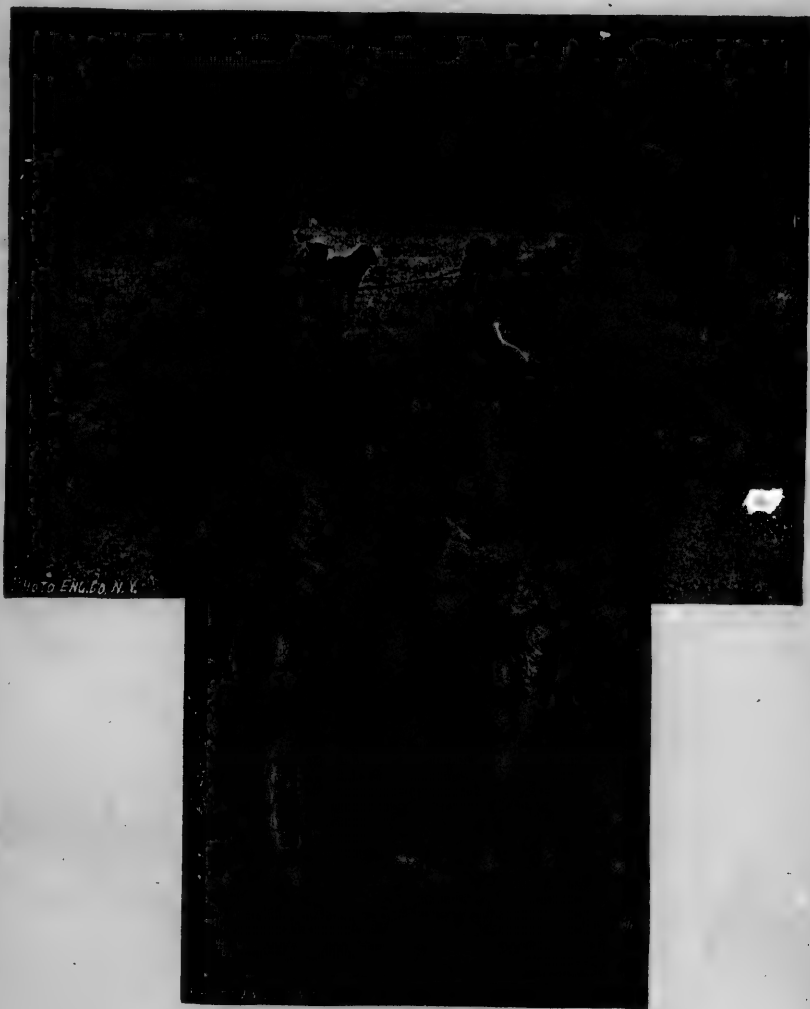
A temporary landing-place is built out into water deep enough for loaded boats drawing five feet to come up at high tide; this is removed when winter approaches, as otherwise it would be destroyed by ice. The shore is sandy and affords a moderately sloping beach, on which boats may be drawn up. A few feet only from high water mark are perpendicular banks from six to ten feet high, composed of decayed pumice and ashes, covered with a layer about four feet thick of clay and vegetable matter resembling peat. This forms a nearly even meadow with numerous pools of water, which gradually ascends for a mile or so to a low hill, of volcanic origin, known as the Shaman Mountain.

Between the point on which St. Michael is built and the mainland, a small arm of the sea makes in, in which three fathoms may be carried until the flagstaff of the fort bears west by north; this is the best-protected anchorage, and has as much water and as good bottom as can be found much farther out.

The excitement of the summer of 1897 caused an enlargement of facilities and the erection of additional buildings, forming a nucleus of traffic called Fort Get There. Here will be put together in the autumn or winter at least three, and perhaps more, new river steamboats, of which only two or three have been running on the lower river during the last two or three years. These are taken up in pieces by ships and fitted together at this point. All are flat-bottomed, stern-wheeled, powerfully engined craft, the largest able to carry perhaps 250 tons, such as run on the upper Missouri, and they will burn wood, the cutting and stacking of which on the river bank will furnish work to many men during the coming winter. To such steamers, or smaller boats, all the persons and cargoes must be transferred at St. Michael.

For the last few years there has been no trader here but the agent of the Alaska Commercial Company, and a story is told of the building of a river

boat there in 1892, which illustrates what life on the Yukon used to be. In that year a Chicago man, P. B. Weare, resolved to enter the Alaskan field as a trader. He chartered a schooner and placed upon it a steamboat, built in sections and needing only to be put together and have its machinery set up, and for this purpose he took with him a force of carpenters and machinists. On reaching St. Michael Weare was refused permission to land his boat sections on the land of the Commercial Company's post, and was compelled to make a troublesome landing on the open beach, where he began operations. Suddenly his ship carpenters stopped work. They had been offered, it was said, double pay by the rival concern if they would desist from all work. Weare turned to the Indians, but with the same ill-success. The Indians were looking out for their winter grub. Here was the Chicago man 2,500 miles from San Francisco and only two weeks left to him in which to put his boat together and then hope for a chance to ascend the river before winter came on. There was no time in which to get additional men from San Francisco. In the midst of his trouble Weare one day espied the revenue cutter Bear steaming into the roadstead. On board of her was Captain Michael A. Healy. That officer, on going ashore and discovering the con-



A TEAM OF DOGS AND DOG SLEDGES.

dition of affairs, threatened to hang every carpenter and mechanic Weare had brought up if they failed to immediately commence work. The men went to work, and with them went a gang of men from the Bear. The little steamer was put together in a few days, and the Bear only went to sea after seeing the P. B. Weare steaming into the mouth of the Yukon.

The Weare was enabled that summer to land her stores along the Yukon, and was the only vessel available for the early crowds of miners going to Klondike.

The mouth of the Yukon is a great delta, surrounded by marsh or tundra—a soaking prairie in summer, a plain of snow and ice in winter. The shifting bars and shallows fan out from this delta far into Bering Sea, and no channel has yet been discovered whereby an ocean steamer could enter any of the mouths. Fortunately the northernmost mouth nearest St. Michael and 65 miles from it is navigable for the light river steamers, and this one, called Aphoon, and marked by its unusual growth of willows and bushes is well known to the local Russian and Indian pilots. It is narrow and intricate, and the general course up stream is south-southeast. Streams and passages enter it, and it has troublesome tidal currents. The whole space be-

tween the mouths is a net-work, indeed, of narrow channels, through the marshes.

Kutlik, at the outlet of the Aphoon, on Pastol Bay, is an Indian village, long celebrated for its manufacture of skin boats (bidars), and there the old-time voyagers were accustomed to get the only night's sleep ashore that navigation permits between St. Michael and Andreafski. On the south bank of the main stream, at the head of the delta, is the Roman Catholic mission of Kuslivuk; and a few miles higher, just above the mouth of the Andreafski River, is the abandoned Russian trading post, Andreafski, above which the river winds past Ikogmut, where there is a Greek Catholic mission. The banks of the river are much wooded, and the current even as far down as Koserefski averages over three knots an hour. Above Koserefski (the Catholic Mission station), the course is along stretches of uninviting country, among marshy islands and "sloughs," the current growing more and more swift on the long reach from Anvik, where the Episcopal mission is situated, to Nulato.

The river here has a nearly north and south course, parallel with the coast of Norton Sound and within fifty miles or so of it. Two portages across here form cut-offs in constant use in winter by the traders, Indians and missionaries. The first of these

portages starts from the mainland opposite the Island of St. Michael, and passes over the range of hills that defines the shore to the headwaters of the Anvik River. This journey may be made in winter by sledges and thence down the Anvik to the Yukon, but it is a hard road. Mr. Nelson, the naturalist, and a fur trader, spent two months from November 16, 1890, to January 19, 1891, in reaching the Yukon by this path.

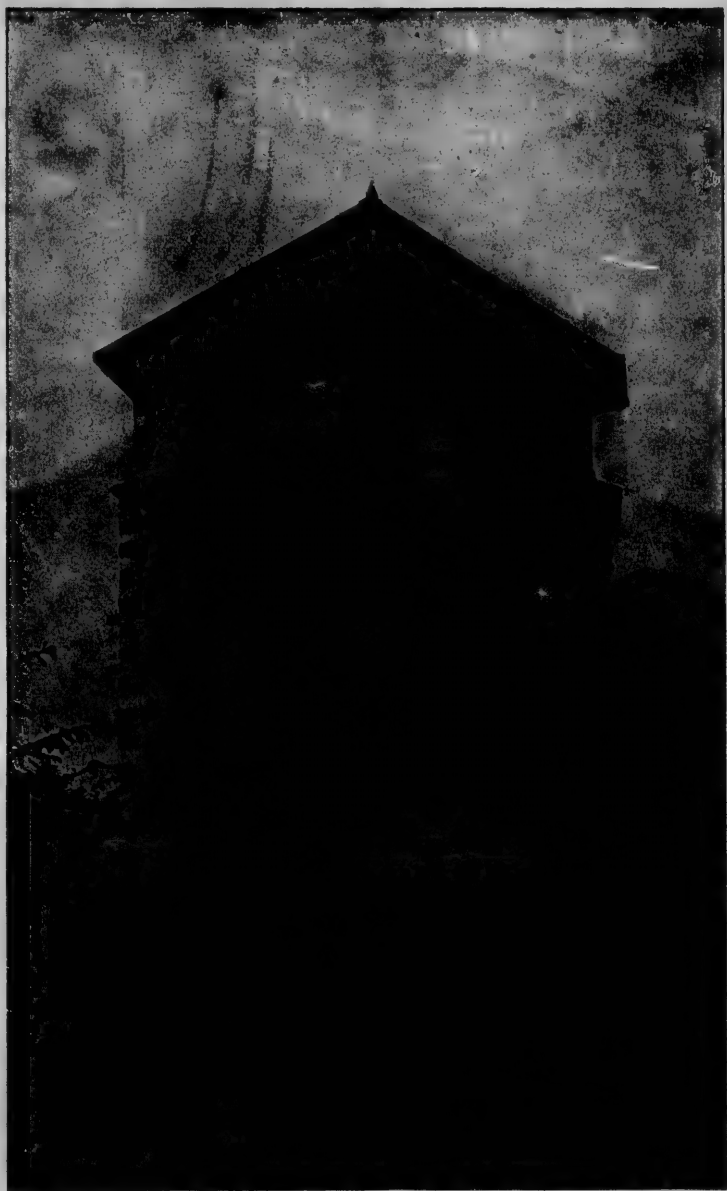
The other portage is that between Unalaklik, a Swedish mission station at the mouth of the Unalaklik River, some fifty miles north of St. Michael, and a stream that enters the Yukon half way between Anvik and Nulato. In going from St. Michael to Unalaklik there are few points at which a boat can land even in the smoothest weather; in rough weather only Major's Cove and Kegiktoweuk before rounding Tolstoi Point to Topánika, where there is a trading post. Topánika is some ten miles from Unalaklik, with a high shelving beach, behind which rise high walls of sandstone in perpendicular bluffs from twenty to one hundred feet in height. This beach continues all the way to the Unalaklik River, the bluff gradually decreasing into a marshy plain at the river's mouth, which is obstructed by a bar over which at low tide there are only a few feet of water except in a narrow and tortuous channel, constantly

changing as the river deposits fresh detritus. Inside this bar there are two or three fathoms for a few miles, but the channel has only a few feet, most of the summer, from the mouth of the river to Ulukuk.

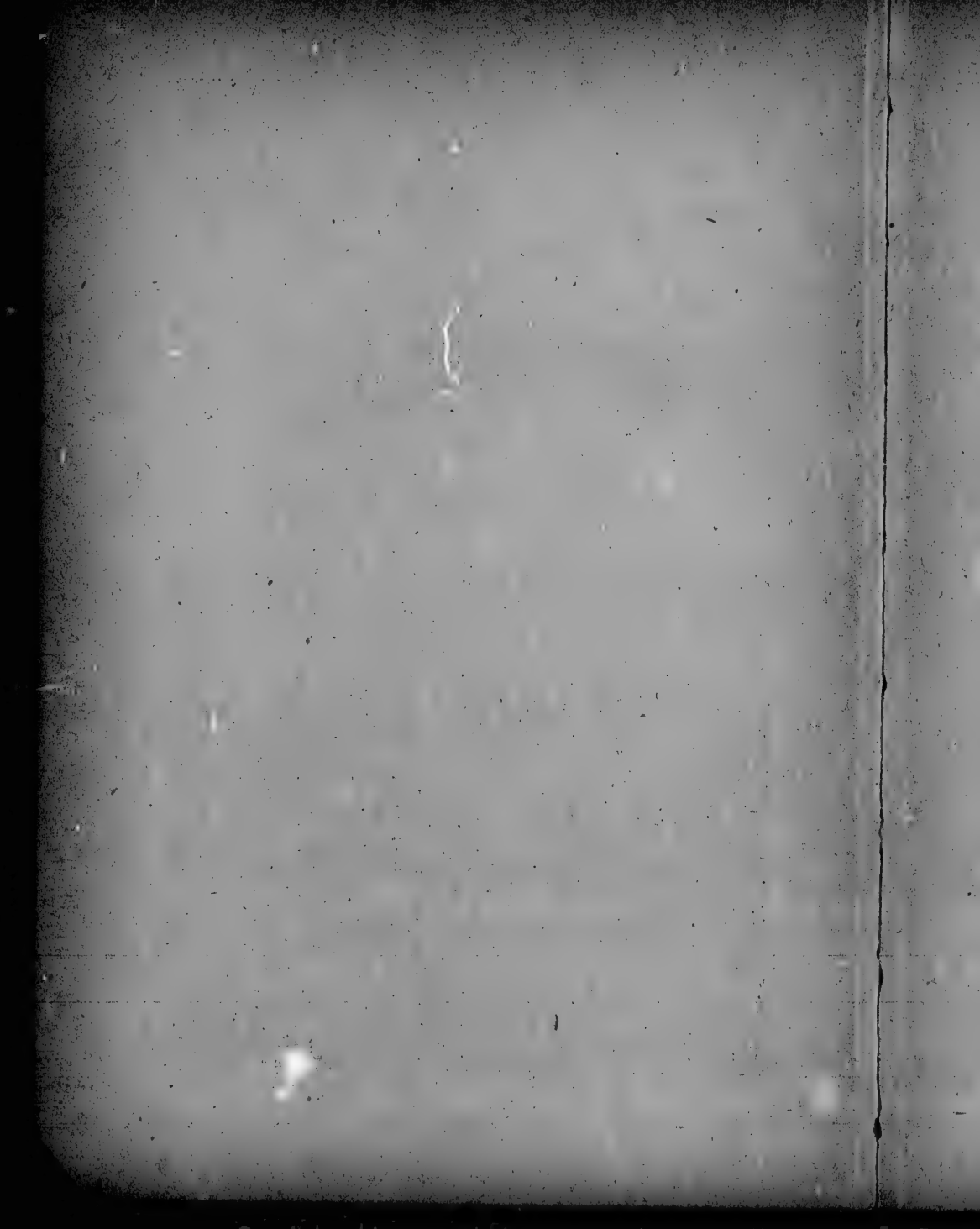
Trees commence along the Unalaklik River as soon as the distance from the coast winds and salt air permits them to grow willow, poplar, birch and spruce being those most frequently found.

The Unalaklik River is followed upward to Ulukuk, where begins a sledging portage over the marshes to the Ulukuk Hills, where there is a native village known as Vesolia Sopka, or Cheerful Peak, at an altitude of eight hundred feet above the surrounding plain. This is a well-known trapping ground, the fox and marten being very plentiful. From Sopka Vesolia (Cheerful Peak) it is about one day's journey to Beaver Lake, which is only a marshy tundra in winter, but is flooded in the spring and summer months. From the high hills beyond the lake one may catch a first glimpse of the great Yukon sweeping between its splendid banks.

The natives call Nulato emphatically a "hungry" place, and it was once the scene of an atrocious massacre. Capt. Dall, from whose book much of the information regarding this part of Alaska is derived, describes the Indians here as a very great nuisance.



OLD RUSSIAN BLOCK HOUSE AT SITKA.



"They had," he explains, "a great habit of coming in and sitting down, doing and saying nothing, but watching everything. At meal times they seemed to count and weigh every morsel we ate, and were never backward in assisting to dispose of the remains of the meal. Occasionally we would get desperate and clean them all out, but they would drop in again and we could do nothing but resign ourselves."

The soil on the banks of the Yukon and that of the islands probably never thaws far below the surface. It is certain that no living roots are found at a greater depth than three feet. The soil, in layers that seem to mark annual inundations, consists of a stratum of sand overlaid by mud and covered with vegetable matter, the layers being from a half inch to three inches in thickness. In many places where the bank has been undermined these layers may be counted by the hundred. Low bluffs of blue sandstone, with here and there a high gravel bank, characterize the shores as far as Point Sakataloutan, and some distance above this point begin the quartzose rocks.

The next station on the river is the village of Nowikakat, on the left bank. Here may be obtained stores of dried meat and fat from the Indians. The village is situated upon a beautiful bay, or Nowika-

kat Harbor, which is connected by a narrow entrance with the Yukon. "Through this a beautiful view is obtained across the river, through the numerous islands of the opposite shore, and of the Yukon Mountains in the distance. The feathery willows and light poplars bend over and are reflected in the dark water, unmixed as yet with Yukon mud; every island and hillside is clothed in the delicate green of spring, and luxuriates in a density of foliage remarkable in such a latitude."

Nowikakat is specially noted for the excellence of its canoes, of which the harbor is so full that a boat makes its landing with difficulty among them. It is the only safe place on the lower Yukon for wintering a steamer, as it is sheltered from the freshets which bring down great crushes of ice in the spring.

At Nuklukahyet there is a mission of the Episcopal church and a trading store, but there may or may not be supplies of civilized goods, not to speak of moose meat and fat. This is the neutral ground where all the tribes meet in the spring to trade. The Tananah, which flows into the Yukon at this point, is much broader here than the Yukon, and it is here that Captain Dall exclaims in his diary: "And yet into this noble river no white man has dipped his paddle." Recently, however, the Tananah has been more or less explored by prospectors

with favorable results towards the head of the river, which is more easily reached overland from Circle City and the Birch Creek camps.

Leaving Nuklukahyet, the "Ramparts" are soon sighted, and the Yukon rapids sweep between bluffs and hills which rise about fifteen hundred feet above the river, which is not more than half a mile wide and seems almost as much underground as a river bed in a canyon. The rocks are metamorphic quartzites, and the river bed is crossed by a belt of granite. The rapid current has worn the granite away at either side, making two good channels, but in the center lies an island of granite over which the water plunges at high water, the fall being about twelve feet in half a mile.

Beyond the mouth of the Tananah the Yukon begins to widen, and it is filled with small islands. The mountains disappear, and just beyond them the Totokakat, or Dall River of Ketchum, enters the Yukon from the north. Beyond this point the river, ever broadening, passes the "Small Houses," deserted along the bank at the time, years ago, when the scarlet fever, brought by a trading vessel to the mouth of the Chilkat, spread to the Upper Yukon and depopulated the station. This place is noted for the abundance of its game and fish.

The banks of the river above this point become

very low and flat, the plain stretching almost unbroken to the Arctic Ocean.

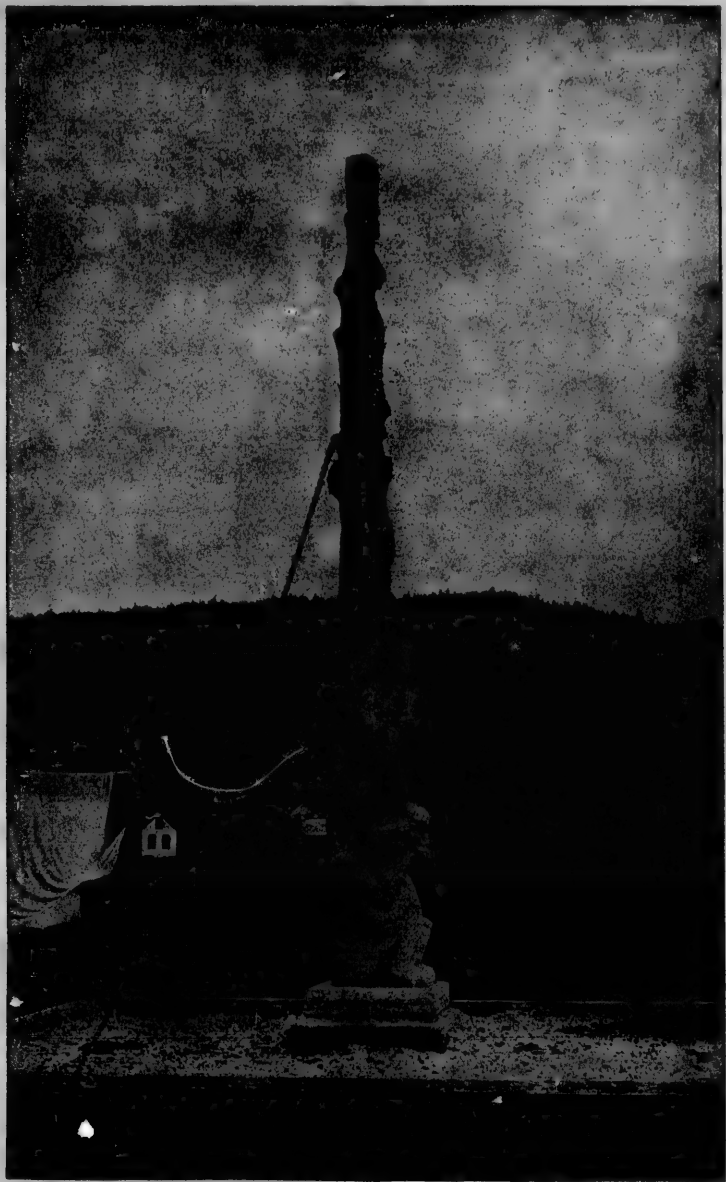
The next stream which empties into the Yukon is Beaver Creek, and farther on the prospector bound for Circle City may make his way some two hundred miles up Birch Creek, along which much gold has already been discovered, to a portage of six miles, which will carry him within six miles of Circle City on the west.

Meanwhile the Yukon passes Porcupine River and Fort Yukon, the old trading-post founded in 1846-7 about a mile farther up the river than the present fort is situated. The situation was changed in 1864, owing to the undermining of the Yukon, which yearly washed away a portion of the steep bank until the foundation timbers of the old Redoubt overhung the flood.

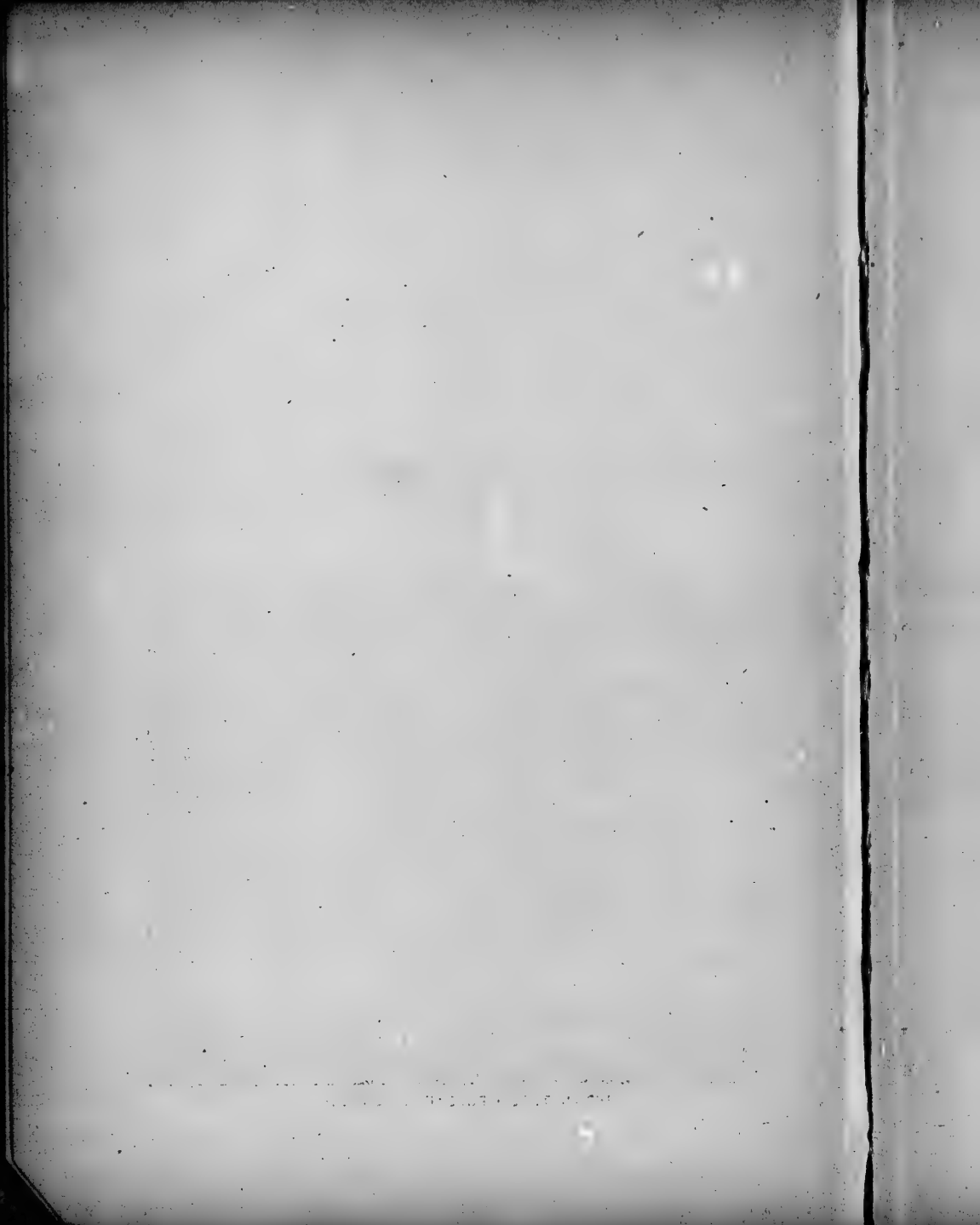
Many small islands encumber the river from Fort Yukon to Circle City, and the river flows along the rich lowland to the towns and mining centers of the new El Dorado, an account of which belongs to a future chapter.

This voyage can be made only between the middle of June and the middle of September, and requires about forty days, at best, from San Francisco to Circle City or Forty Mile.

Route via Juneau, the Passes and down the Up-



INDIAN TOTEM POLE, FORT SIMPSON.



per Yukon River.—The second and more usual, because shorter and quicker, course is that to the head of Lynn Canal (Taiya Inlet) and overland. This coast voyage may be said to begin at Victoria, B. C. (since all coast steamers gather and stop there), where a large number of persons prefer to buy their outfits, since by so doing, and obtaining a certificate of the fact, they avoid the customs duties exacted at the boundary line on all goods and equipments brought from the United States. Victoria is well supplied with stores, and is, besides, one of the most interesting towns on the Pacific coast. The loveliest place in the whole neighborhood is Beacon Hill Park, and is well worth a visit by those who find an hour or two on their hands before the departure of the steamer. It forms a half-natural, half-cultivated area on the shore of the Straits of Fuca, where coppices of the beautiful live oak and many strange trees and shrubs mingle with the all-pervading evergreens.

Within three miles of the city, and reached by street cars, is the principal station in the North Pacific of the British navy, at Esquimault Bay. This is one of the most picturesque harbors in the world, and a beginning is made of fortifications upon a very large scale and of the most modern character. This station, in many respects, is the most interest-

ing place on the Pacific coast of Canada.

Leaving Victoria, the steamer makes its way cautiously through the sinuous channels of the harbor into the waters of Fuca Strait, but this is soon left behind and the steamer turns this way and that, at the entrance to the Gulf of Georgia, among those islands through which runs the international boundary line, and for the possession of which England and the United States nearly went to war in 1862. The water at first is pale and somewhat opaque, for it is the current of the great Fraser gliding far out upon the surface, and the steamer passes on beyond it into the darker, clearer, saltier waters of the gulf. Then the prow is headed to Vancouver, where the mails, freight and new railway passengers are received.

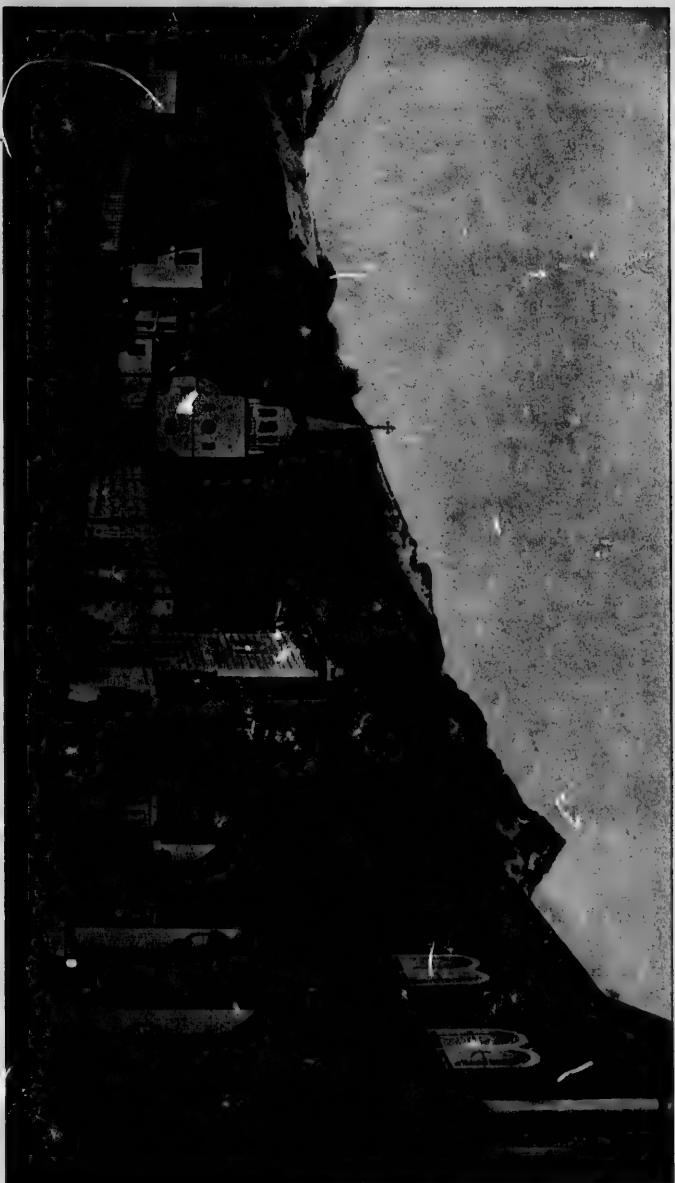
From Vancouver the steamer crosses to Nanaimo, a large settlement on Vancouver Island, where coal mines of great importance exist. A railway now connects this point with Victoria, and a wagon road crosses the interior of the island to Alberni Canal and the seaport at its entrance on Barclay Sound. This is the farthest northern telegraph point. The mines at Nanaimo were exhausted some time ago, after which deep excavations were made on Newcastle Island, just opposite the town. But after a tremendous fire these also were abandoned, and all

the workings are now on the shores of Departure Bay, where a colliery village named Wellington has been built up. A steam ferry connects Nanaimo with Wellington: and while the steamer takes in its coal, the passengers disperse in one or the other village, go trout fishing, shooting or botanizing in the neighboring woods, or trade and chaffer with the Indians. Nanaimo has anything but the appearance of a mining town. The houses do not stretch out in the squalid, soot-covered rows familiar to Pennsylvania, but are scattered picturesquely, and surrounded by gardens.

Just ahead lie the splendid hills of Texada Island, whose iron mines yield ore of extraordinary purity, which is largely shipped to the United States to be made into steel. The steamer keeps to the left, making its way through Bayne's Sound, passing Cape Lazaro on the left and the upper end of Texada on the right, across the broadening water along the Vancouver shore into Seymour Narrows. These narrows are only about 900 yards wide, and in them there is an incessant turmoil and bubbling of currents. This is caused by the collision of the streams which takes place here; the flood stream from the south through the Strait of Fuca and up the Haro Archipelago being met by that from Queen Charlotte Sound and Johnstone straits. These straits are

about 140 miles long, and by the time their full length is passed, and the maze of small islands on the right and Vancouver's bulwark on the left are escaped together, the open Pacific shows itself for an hour or two in the offing of Queen Charlotte's Sound, and the steamer rises and falls gently upon long, lazy rollers that have swept all the way from China and Polynesia. Otherwise the whole voyage is in sheltered waters, and seasickness is impossible. The steamer's course now hugs the shore, turning into Fitz Hugh Sound, among Calvert, Hunter's and Bardswell islands, where the ship's spars sometimes brush the overhanging trees. Here are the entrances to Burke Channel and Dean's Canal that penetrate far amid the tremendous cliffs of the mainland mountains. Beyond these the steamer dashes across the open bight of Milbank Sound only to enter the long passages behind Princess Royal, Pitt and Packer Islands, and come out at last into Dixon Sound at the extremity of British Columbia's ragged coast line.

The fogs which prevail here are due to the fact that this bight is filled with the waters of the warm Japanese current—the gulf stream of the Pacific—from which the warm moisture rises to be condensed by the cool air that descends from the neighboring mountains into the dense fogs and heavy rain



STREET IN SITKA.

storms to which the littoral forest owes its extraordinary luxuriance. During the midsummer and early autumn, however, the temperature of air and water becomes so nearly equable that fog and rain are the exception rather than the rule.

Crossing the invisible boundary into Alaska the steamer heads straight toward Fort Tongass, on Wales Island, once a military station of the United States, but now only a fishing place. Between this point and Fort Wrangle, another band of military post of the United States, two or three fish canneries and trading stations are visited and the ship goes on among innumerable islands and along wide reaches of sound to Taku Inlet (which deeply indents the coast, and is likely in the near future to become an important route to the gold fields), and a few hours later Juneau City is reached.

Juneau City has been lately called the key to the Klondike regions, as it is the point of departure for the numberless gold hunters who, when the season opens again, will rush blindly over incalculably rich ledges near the coast to that remote inland El Dorado of their dreams.

Juneau has for seventeen years been supported by the gold mines of the neighboring coast. It is situated ten miles above the entrance of Gastineau Channel, and lies at the base of precipitous mountains,

its court house, hotels, churches, schools, hospital and opera house forming the nucleus for a population which in 1893 aggregated 5,500, a number very largely increased each winter by the miners who gather in from distant camps. The saloons, of which in 1871 there were already twenty-two, have increased proportionately, and there are, further, at least one weekly newspaper, one volunteer fire brigade, a militia company and a brass band in Juneau. The curio shops on Front and Seward streets are well worth visiting, and from the top of Seward Street a path leads up to the Auk village, whose people claim the flats at the mouth of Gold Creek. A curious cemetery may be seen on the high ground.

FROM JUNEAU TO THE GOLD FIELDS.

The few persons who formerly wished to go to the head of Lynn Canal did so mainly by canoeing, or chartered launches, but now many opportunities are offered by large steamboats. Most of the steamers that bring miners and prospectors from below do not now discharge their freight at Juneau, however, but go straight to the new port Dyce at the head of the canal. Lynn Canal is the grandest fiord on the coast, which it penetrates for seventy-five

miles. It is then divided by a long peninsula called Seduction Point, into two prongs, the western of which is called Chilkat Inlet, and the eastern Chilkoot. "It has but few indentations, and the abrupt palisades of the mainland shores present an unrivalled panorama of mountains, glaciers and forests, with wonderful cloud effects. Depths of 430 fathoms have been sounded in the canal, and the continental range on the east and the White Mountains on the west rise to average heights of 6,000 feet, with glaciers in every ravine and alcove." The Cameron boundary line, which Canada would like to establish, would cut this fiord in two, and make it useless to both countries in case of quarrel. The magnificent fan-shaped Davidson glacier here is only one among hundreds of grand ice rivers shedding their bergs into its waters. At various points salmon canneries have long been in operation; and the Seward City mines are only the best among several mineral locations of promise. A glance at the map will show that this "canal" forms a straight continuation of Chatham Strait, making a north and south passage nearly four hundred miles in length, which is undoubtedly the trough of a departed glacier.

Dyea, the new steamer landing and sub-port of entry, is at the head of navigation on the Chilkoot or eastern branch of this Lynn Canal, and takes its

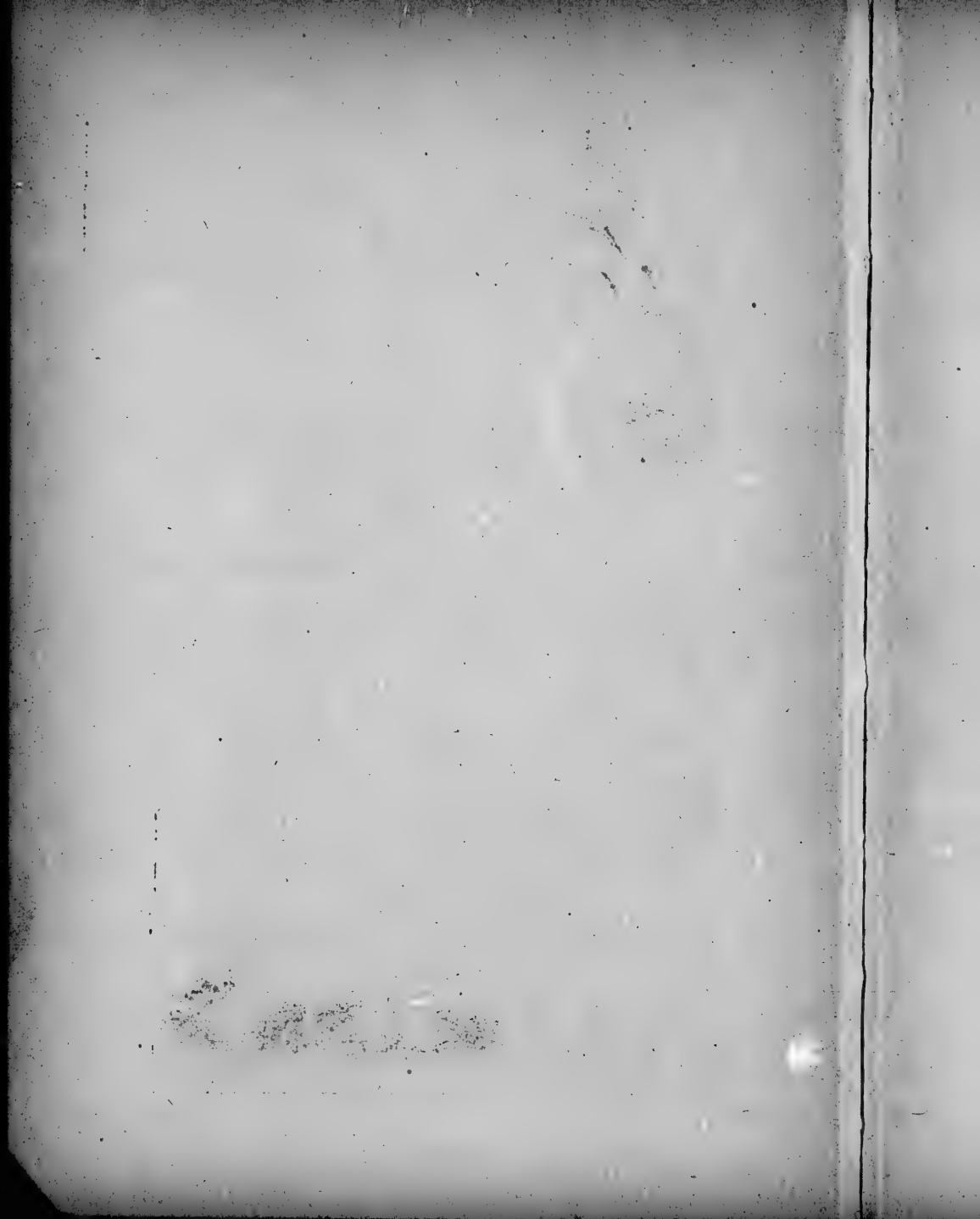
name, in bad modern spelling, from the long-known Taiya Inlet, which is a prolongation inland for twenty miles of the head of the Chilkoot Inlet. It should continue to be spelled Taiya. This inlet is far the better of the two for shipping, Chilkat Inlet being exposed to the prevalent and often dangerous south wind, so that it is regarded by navigators as one of the most dangerous points on the Alaskan coast. A Presbyterian mission and government school were formerly sustained at Haines, on Seduction Point, but were abandoned some years ago on account of Indian hostility.

The Passes.—Three passes over the mountains are reached from these two inlets—Chilkat, Chilkoot and White.

Chilkat Pass is that longest known and formerly most in vogue. The Chilkat Indians had several fixed villages near the head of the inlet, and were accustomed to go back and forth over the mountains to trade with the interior Indians, whom they would not allow to come to the coast. They thus enjoyed not only the monopoly of the business of carrying supplies over to the Yukon trading posts and bringing out the furs, and more recently of assisting the miners, but made huge profits as middlemen between the Indians of the interior and the trading posts on the coast. They are a sturdy race



PANORAMIC VIEW OF JUNEAU.



of mountaineers, and the most arrogant, treacherous and turbulent of all the northwestern tribes, but their day is nearly passed. The early explorers—Krause, Everette and others—took this pass, and it was here that E. J. Glave first tried (in 1891) to take pack horses across the mountains, and succeeded so well as to show the feasibility of that method of carriage, which put a check upon the extortion and faithlessness of the Indian carriers. His account of his adventures in making this experiment, over bogs, wild rocky heights, snow fields, swift rivers and forest barriers, has been detailed in *The Century Magazine* for 1892, and should be read by all interested. "No matter how important your mission," Mr. Glave wrote, "your Indian carriers, though they have duly contracted to accompany you, will delay your departure till it suits their convenience, and any exhibition of impatience on your part will only remind them of your utter dependency on them; and then intrigue for increase of pay will at once begin. While en route they will prolong the journey by camping on the trail for two or three weeks, tempted by good hunting or fishing. In a land where the open season is so short, and the ways are so long, such delay is a tremendous drawback. Often the Indians will carry their loads some part of the way agreed on, then demand an

extravagant increase of pay or a goodly share of the white man's stores, and, failing to get either, will fling down their packs and return to their village, leaving their white employer helplessly stranded."

The usual charge for Indian carriers is \$2 a day and board, and they demand the best fare and a great deal of it, so that the white man finds his precious stores largely wasted before reaching his destination. These facts are mentioned, not because it is now necessary to endure this extortion and expense, but to show how little dependence can be placed upon the hope of securing the aid of Indian packers in carrying the goods of prospectors or explorers elsewhere in the interior, and the great expense involved. This pass descends to a series of connected lakes leading down to Lake Labarge and thence by another stream to the Lewes; and it requires twelve days of pack-carrying—far more than is necessary on the other passes. As a consequence, this pass is now rarely used except by Indians going to the Aksekh river and the coast ranges northward.

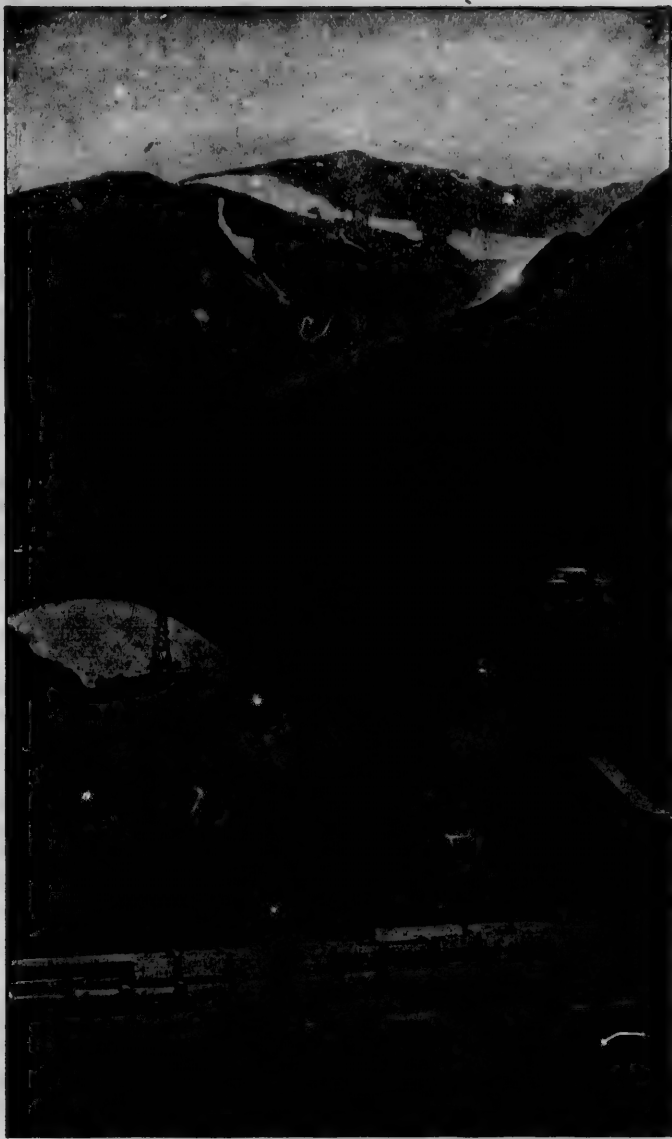
Chilkoot, Taiya or Parrier Pass.—This is the pass that has been used since 1885 by the miners and others on the upper Yukon, and is still a route of travel. It starts from the head of canoe navigation on Taiya inlet, and follows up a stream valley, gradually leading to the divide, which

is only 3,500 feet above the sea. The first day's march is to the foot of the ascent, and over a terrible trail, through heavy woods and along a steep, rocky and often boggy hillside, broken by several deep gullies. The ascent is then very abrupt and over huge masses of fallen rock or steep, slippery surfaces of rock in place. At the actual summit, which for seven or eight miles is bare of trees or bushes, the trail leads through a narrow rocky gap, and the whole scene is one of the most complete desolation, naked granite rocks rising steeply to partly snow-clad mountains on either side. Descending the inland or north slope is equally bad traveling, largely over wide areas of shattered rocks where the trail may easily be lost. The further valley contains several little lakes and leads roughly down to Lake Lindeman. The distance from Taiya is twenty-three and a half miles, and it is usually made in two days. Miners sometimes cross this pass in April, choosing fine weather, and then continue down the lakes on the ice to some point where they can conveniently camp and wait for the opening of navigation on the Yukon; ordinarily it is unsafe to attempt a return in the autumn later than the first of October.

Lake Lindeman is a long, narrow piece of water navigable for boats to its foot, where a very bad river passage leads into the larger Lake Bennett, where

the navigation of the Yukon really begins.

"The Chilkoot Pass," writes one of its latest travelers, "is difficult, even dangerous, to those not possessed of steady nerves. Toward the summit there is a sheer ascent of 1,000 feet, where a slip would certainly be fatal. At this point a dense mist overtook us, but we reached Lake Lindeman—the first of a series of five lakes—in safety, after a fatiguing tramp of fourteen consecutive hours through half-melted snow. Here we had to build our own boat, first felling the timber for the purpose. The journey down the lakes occupied ten days, four of which were passed in camp on Lake Bennett, during a violent storm, which raised a heavy sea. The rapids followed. One of these latter, the 'Grand Canyon,' is a mile long, and dashes through walls of rock from 50 to 100 feet high; six miles below are the 'White Horse Rapids,' a name which many fatal accidents have converted into the 'Miner's Grave.' But snags and rocks are everywhere a fruitful source of danger on this river, and from this rapid downward scarcely a day passed that one did not see some cairn or wooden cross marking the last resting place of some drowned pilgrim to the land of gold. The above is a brief sketch of the troubles that beset the Alaskan gold prospector—troubles that, although unknown in the eastern states and Canada, have for



GENERAL VIEW OF SILVER BOW BASIN, NEAR JUNEAU.

many years past associated the name of Yukon with an ugly sound in western America."

It is probable that few if any persons need go over this pass next year, and its hardships will become a tradition instead of a terrible prospect.

White Pass.—This pass lies south of the Chilkoot, and leaves the coast at the mouth of the Skagway river, five miles south of Dyea and 100 from Juneau. It was first explored in 1887 and was found to run parallel to the Chilkoot. The distance from the coast to the summit is seventeen miles, of which the first five are in level bottom land, thickly timbered. The next nine miles are in a cañon-like valley, beyond which three miles, comparatively easy, take one to the summit, the altitude of which is roughly estimated at 2,600 feet. Beyond the summit a wide valley is entered and leads gradually to the Tahko arm of Tagish Lake. This pass, though requiring a longer carriage, is lower and easier than the others, and already a pack-trail has been built through it which will soon be followed by a wagon road, and surveys for a narrow gauge railway are in progress. At the mouth of the Skagway River ocean steamers can run up at all times to a wharf which has been constructed in a sheltered position, and there is an excellent town site with protection from storms.

An English company, the British Columbia Development Association, Limited, has already established a landing wharf and is erecting a wharf and sawmills at Skagway, whence it is proposed (as soon as feasible) to lay down a line of rail some thirty-five miles long, striking the Yukon River at a branch of Marsh Lake, about 100 miles below Lake Lindeman. By this means the tedious and difficult navigation between these two points will be avoided, and the only dangerous parts of the river below will be circumvented by a road or rail portage. Light-draught steamers will be put on from Teslin Lake to the cañon and from the foot of the latter to all the towns and camps on the river.

Dyca is a village of cabins and tents, and little if anything in the way of supplies can be got there; it is a mere forwarding point.

Pending the completion of the facilities mentioned above, miners may transport their goods over the pack trail on their own or hired burros, and at Tagish Lake take a boat down the Tahko arm (11 miles) to the main lake, and down that lake and its outlet into Lake Marsh. This chain of lakes, filling the troughs of old glacial fiords to a level of 2,150 feet above the sea, "constitutes a singularly picturesque region, abounding in striking points of view and in landscapes pleasing in their variety or grand and im-

pressive in this combination of rugged mountain forms." All afford still-water navigation, and as soon as the road through White Pass permits the transportation of machinery, they will doubtless be well supplied with steamboats. Marsh Lake is 20 miles long, Bennett 26, and Tagish 16½ miles, with Windy Arm 11 miles long, Tahko Arm 20 miles, and other long, narrow extensions among the terraced, evergreen-wooded hills that border its tranquil surface. The depression in which this group of lakes lies is between the coast range and the main range of the Rockies; and as it is sheltered from the wet sea-winds by the former heights, its climate is nearly as dry as that of the interior. The banks are fairly well timbered, though large open spaces exist, and abound in herbage, grass and edible berries. Lake Marsh, named by Schwatka after Prof. O. C. Marsh of Yale, but called Mud Lake by the miners, without good reason, is twenty miles long and about two wide. It is rather shallow and the left bank should be followed. The surrounding region is rather low, rising by terraces to high ranges on each side, where Michie mountain, 5,540 feet in height, eastward, and Mounts Lorne and Landsdowne, westward, 6,400 and 6,140 feet high respectively, are the most prominent peaks. "The diversified forms of the mountains in view from this lake render it particularly

picturesque," remarks Dr. Dawson, "and at the time of our visit, on the 10th and 11th of September, the autumn tints of the aspens and other deciduous trees and shrubs, mingled with the sombre greens of the spruces and pines, added to its beauty."

Near the foot of this lake enters the McClintock river, of which little is known. The outlet is a clear, narrow, quiet stream, called Fifty-mile River, which flows somewhat westerly down the great valley. Large numbers of dead and dying salmon are always seen here in summer, and as these fish never reach Lake Marsh, it is evident that the few who are able, after their long journey, to struggle up the rapids, have not strength left to survive.

The descent of the Lewes (or Yukon) may be said to begin at this point, and 23 miles below Lake Marsh the first and most serious obstacle is encountered in the White Horse Rapids, and Miles Cañon. Their length together is $2\frac{1}{2}$ miles, and they seem to have been caused by a small local effusion of lava, which was most unfortunately ejected right in the path of the river. The cañon is often not more than 100 feet in width, and although parts of it may be run at favorable times, all of it is dangerous, and the White Horse should never be attempted. The portage path in the upper part of the cañon is on the east bank, and is about five-eighths of a mile



A BELLE OF ALASKA.

long. There a stretch of navigation is possible, with caution, ending at the head of White Horse Rapids, where one must land on the west bank, which consists of steep rocks, very awkward for managing a boat from or carrying a burden over. Usually the empty boat can be dropped down with a line, but when the water is high boat as well as cargo must be carried for 100 yards or more, and again, lower down, for a less distance. The miners have put down rollways along a roughly constructed road here to make the portage of the boats easier, and some windlasses for hauling the boats along the water or out and into it. It would be possible to build a good road or tramway along the east bank of these rapids without great difficulty; and plans are already formulated for a railway to be built around the whole three miles of obstruction, in the summer of 1898, to connect with the steamboats above and below that will no doubt be running next year.

The river below the rapids is fast (about four miles an hour) for a few miles, and many gravel banks appear. It gradually subsides, however, into a quiet stream flowing northwest along the same wide valley. No rock is seen here, the banks being bluffs of white silt, which turns the clear blue of the current above into a cloudy and opaque yellow.

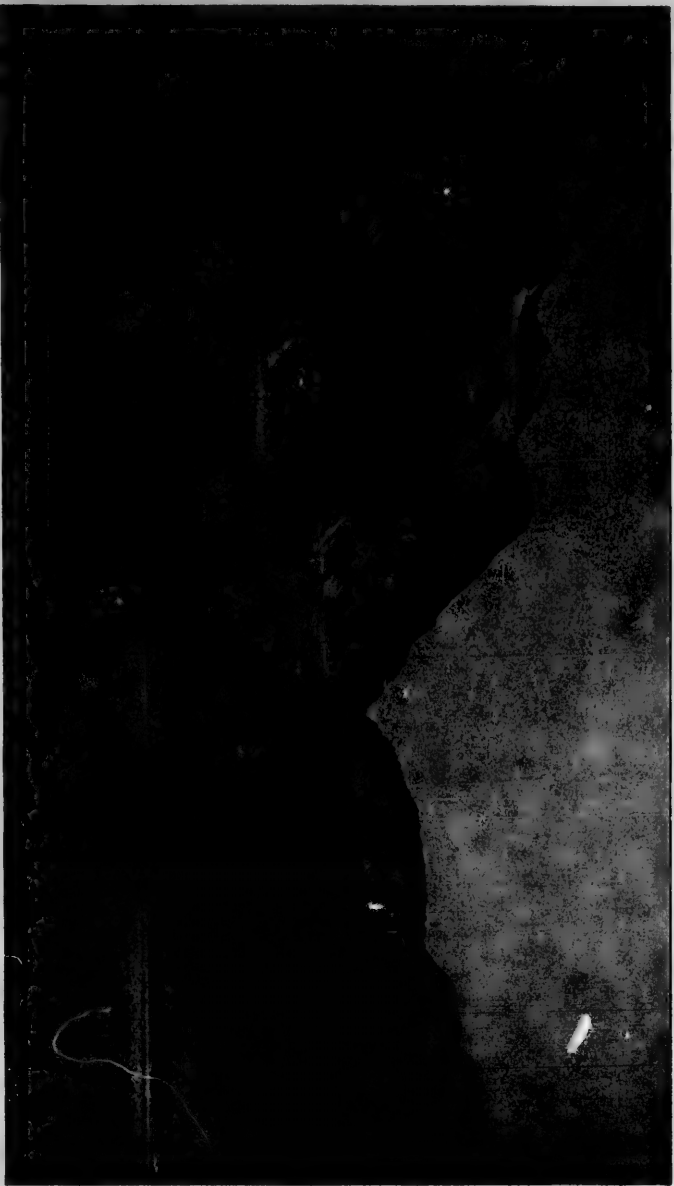
Thirteen miles (measuring, as usual, along the river) brings the voyager to the mouth of the Tah-Keena, a turbid stream about 75 yards wide and 10 feet deep, which comes in from the west. Its sources are at the foot of the Chilkat Pass, where it flows out of West Kussoa lake (afterwards named Lake Arkell), and was formerly much employed by the Chilkat Indians as a means of reaching the interior, but was never in favor with the miners, and is now rarely followed by the Indians themselves, although its navigation from the lake down is reported to be easy.

Eleven and a half miles of quiet boating takes one to the head of Lake Labarge. This lake is 31 miles long, lies nearly north and south, and is irregularly elongated, reaching a width of six miles near the lower end. It is 2,100 feet above sea level and is bordered everywhere by mountains, those on the south having remarkably abrupt and castellated forms and carrying summits of white limestone. This lake is a very stormy one, and travelers often have to wait in camp for several days on its shores until calmer weather permits them to go on. This whole river valley is a great trough sucking inland the prevailing southerly summer winds, and navigation on all the lakes is likely to be rough for small boats.

The river below Lake Labarge is crooked, and at first rapid—six miles or more an hour, and interrupted by boulders; but it is believed that a stern wheel steamer of proper power could ascend at all times. The banks are earthen, but little worn, as floods do not seem to occur. Twenty-seven miles takes one to the mouth of a large tributary from the southeast—the Teslinto, which Schwatka called Newberry River, and which the miners mistakenly call Totalinqu. It comes from the great Lake Teslin, which lies across the British Columbia boundary (Lat. 62 deg.), and is said to be 100 miles long; and it is further said that an Indian trail connects it with the head of canoe navigation on the Taku river, by only two long days of portaging. Some miners are said to have gone over it in 1876 or '77. Schwatka and Hayes came this way; and it may form one of the routes of the future,—perhaps even a railway route. This river flows through a wide and somewhat arid valley, and was roughly prospected about 1887 by men who reported finding fine gold all along its course, and also in tributaries of the lake. As the mountains about the head of the lake belong to the Cassiar range, upon whose southern slopes the Cassiar mines are situated, there is every reason to suppose that gold will ultimately be found there in paying quantities.

This part of the Lewes is called Thirty-mile River, under the impression that it is really a tributary of the Teslinto, which is, in fact, wider than the Lewes at the junction (Teslinto, width 575 feet; Lewes, 420 feet), but it carries far less water. From this confluence the course is north, in a deep, swift, somewhat turbid current, through the crooked defiles of the Seminow hills. Several auriferous bars have been worked here, and some shore-placers, including the rich Cassiar bar. Thirty-one miles below the Teslinto the Big Salmon, or D'Abbadie River, enters from the southeast—an important river, 350 feet wide, having clear blue water flowing deep and quiet in a stream navigable by steamboats for many miles. Its head is about 150 miles away, not far from Teslin Lake, in some small lakes reached by the Salmon, and surrounded by granite mountains. Prospectors have traced all its course and found fine gold in many places.

Thirty-four miles below the Big Salmon, west-north-west, along a comparatively straight course, carries the boatman to the Little Salmon, or Daly River, where the valley is so broad that no mountains are anywhere in sight, only lines of low hills at a distance from the banks. Five miles below this river the river makes an abrupt turn to the southwest around Eagle's Nest rock, and 18½ miles beyond



DAVIDSON GLACIER.

CHILKAT INLET.

that reaches the Nordenskiöld, a small, swift, clear-watered tributary from the southwest. The rocks of all this part of the river show thin seams of coal, and gold has been found on several bars. The current now flows nearly due north and a dozen miles below the Nordenskiöld carries one to the second and last serious obstruction to navigation in the Rink rapids, as Schwatka called them, or Five-finger, as they are popularly known, referring to five large masses of rock that stand like towers in mid channel. These, and other islands, back up the water, rendering its currents strong and turbulent, but will offer little opposition to a good steamboat. Boatmen descending the river are advised to hug the right bank, and a landing should be made twenty yards above the rapids in an eddy, where heavily loaded boats should be lightened. The run should be made close along the shore, and all bad water ends when the Little Rink Rapids have been passed, six miles below. Just below the rapids the small Tatshun River comes in from the right. Then the valley broadens out, the current quiets down and a pleasing landscape greets the eye as bend after bend is turned. A long washed bank on the northeast side is called Hoo-che-koo Bluff, and soon after passing it one finds himself in the midst of the pretty Ingersoll archipelago, where the river widens out

and wanders among hundreds of islets. Fifty-five miles by the river below Rink Rapids, the confluence of the Lewes and Pelly is reached, and the first sign of civilization is the ruins of old Fort Selkirk, with such recent and probably temporary occupation as circumstances may cause. Before long, undoubtedly, a flourishing permanent settlement will grow up in this favorable situation.

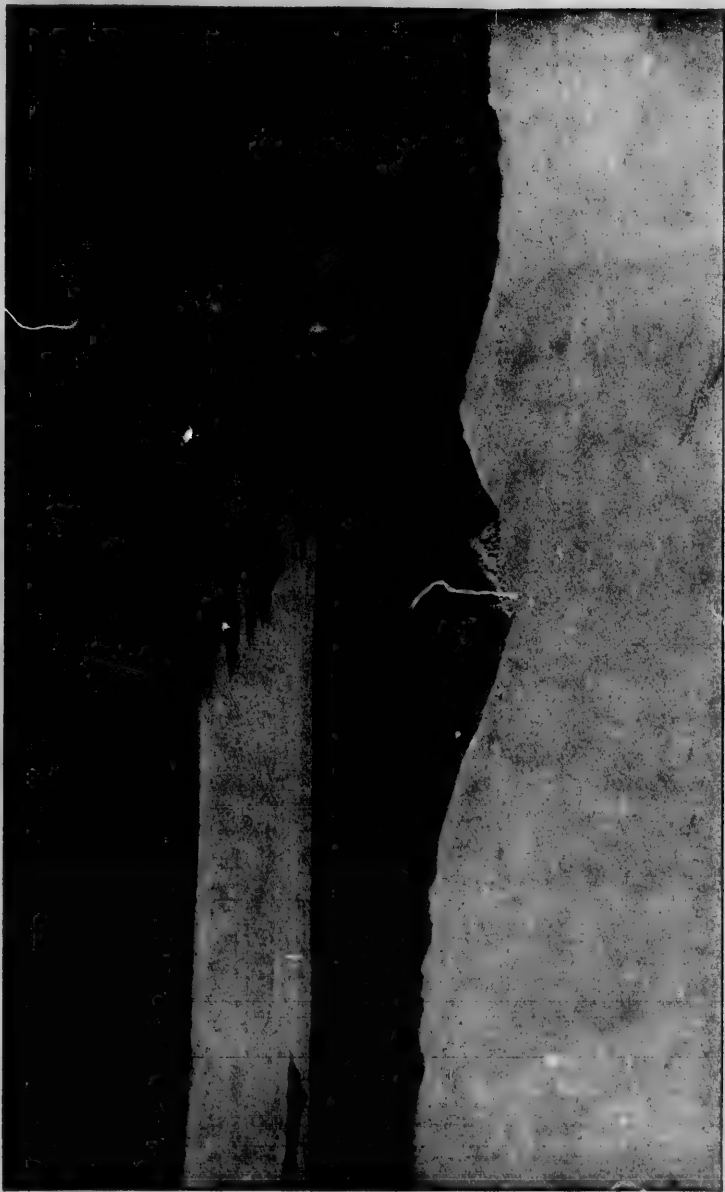
The confluence here of the Lewes and Pelly rivers forms the Yukon, which thenceforth pursues an uninterrupted course of 1,650 miles to Behring Sea. The country about the confluence is low, with extensive terraced flats running back to the bases of rounded hills and ridges. The Yukon below the junction averages about one-quarter of a mile in width, and has an average depth of about 10 feet, with a surface velocity of $4\frac{1}{2}$ miles an hour. A good many gravel bars occur, but no shifting sand. The general course nearly to White River, 96 miles, is a little north of west, and many islands are seen; then the river turns to a nearly due north course, maintained to Fort Reliance. The White River is a powerful stream, plunging down loaded with silt, over ever shifting sand bars. Its upper source is problematical, but is probably in the Alaskan mountains near the head of the Tanana and Forty-mile Creek.

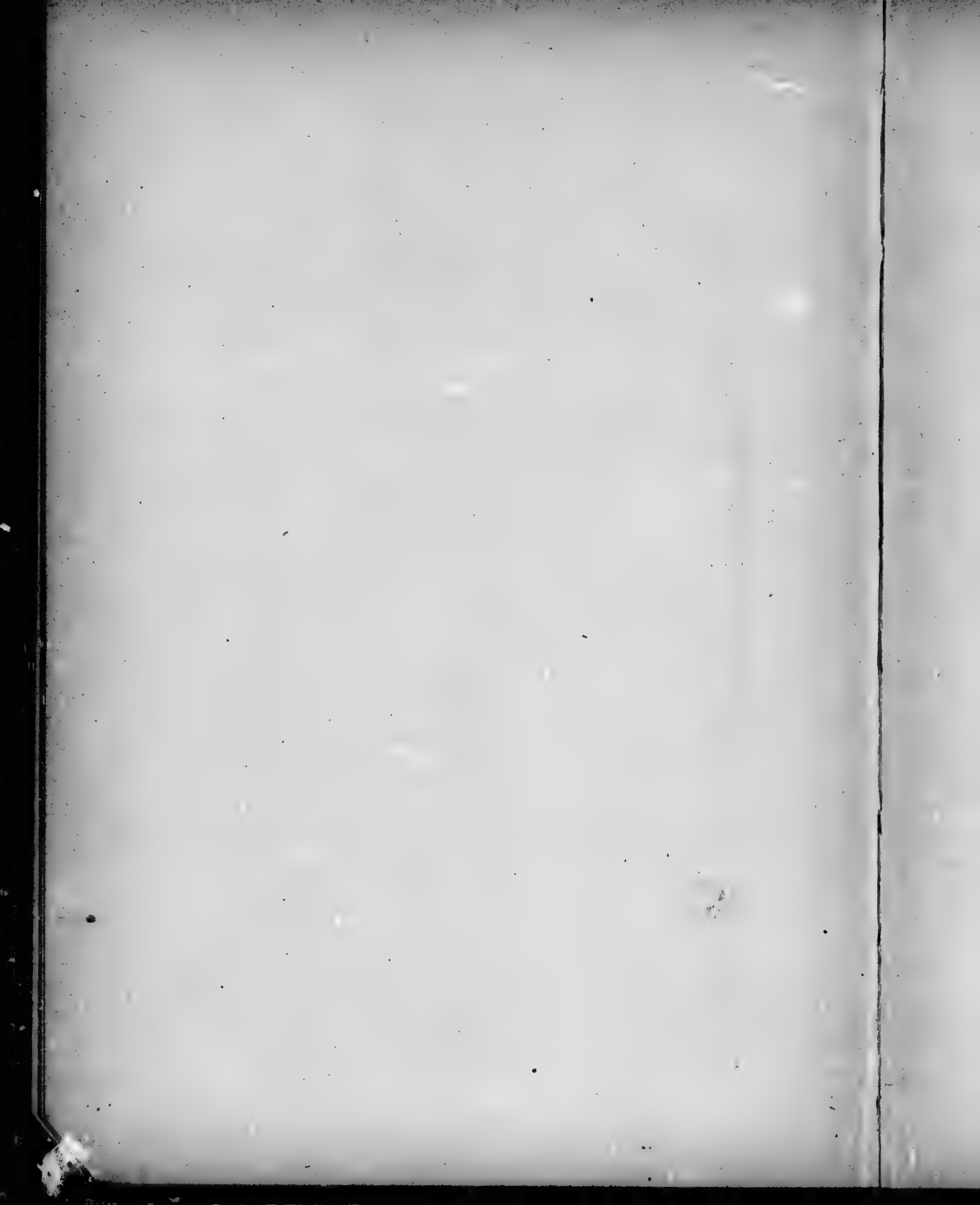
For the next ten miles the river spreads out to more than a mile wide and becomes a maze of islands and bars, the main channel being along the western shore, where there is plenty of water. This brings one to Stewart river, which is the most important right-hand tributary between the Pelly and the Porcupine. It enters from the east in the middle of a wide valley, and half a mile above its mouth is 200 yards in width; the current is slow and the water dark colored. It has been followed to its headwaters in the main range of the Rockies, and several large branches, on some of which there are remarkable falls, have been traced to their sources through the forested and snowy hills where they rise. These sources are perhaps 200 miles from the mouth, but as none of the wanderers were equipped with either geographical knowledge or instruments nothing definite is known. Reports of traces of precious metals have been brought back from many points in the Stewart valley, but this information is as vague as the other thus far. All reports agree that a light-draught steamboat could go to the head of the Stewart and far up its feeders. There is a trading post at its mouth.

The succeeding 125 miles holds what is at present the most interesting and populous part of the Yukon valley. The river varies from half to three-

quarters of a mile wide and is full of islands. About 23 miles below Stewart River a large stream enters from the west called Sixty-mile Creek by the miners, who have had a small winter camp and trading store there for some years, and have explored its course for gold to its rise in the mountains west of the international boundary. Every little tributary has been named, among them (going up), Charley's Fork, Edwards Creek and Hawley Creek, in Canada, and then, on the American side of the line, Gold Creek, Miller Creek and Bed Rock Creek. The sand and gravel of all these have yielded fine gold and some of them, as Miller Creek, have become noted for their richness. Forty-four miles below Sixty-mile takes one to Dawson City, at the mouth of Klondike River, —the center of the highest productiveness and greatest excitement during 1897, when the gold fields of the interior of Alaska first attracted the attention of the world. Leaving to another special chapter an account of them, the itinerary may be completed by saying that $6\frac{1}{2}$ miles below the mouth of the Klondike is Fort Reliance, an old private trading post of no present importance. Twelve and a half miles farther the Chan-din-du River enters from the east, and $33\frac{1}{2}$ below that is the mouth of Forty-mile Creek, or Cone Hill River, which until the past year was the most important mining region of the inte-

VIEW FROM INDIAN CHURCH, LOOKING NORTHEAST.





rior. It took its name from the supposition that it was 40 miles from Fort Reliance, but the true distance is 46 miles. On the south side of the outlet of this stream is the old trading post and modern town of Forty-Mile, and on the north side the more recent settlement Cudahy. Both towns are, of course, on the western bank of the Yukon, which is here about half a mile wide. Five miles below Cudahy, Coal Creek comes in from the east, and nearly marks the Alaskan boundary, where a narrowed part of the river admits one to United States territory. Prominent landmarks here are two great rocks, named by old timers Old Man rock, on the west bank, and Old Woman, on the east bank, in reference to Indian legends attached to them. Some twenty miles west of the boundary—the river now having turned nearly due west in its general course—Seventy-mile, or Klevande Creek, comes in from the south, and somewhat below it the Tat-on-duc from the north. It was ascended in 1887 by Mr. Ogilvie, who describes its lower valley as broad and well timbered, but its upper part flows through a series of magnificent cañons, one of which half a mile long, is not more than 50 feet wide with vertical walls fully 700 feet in height. There are said to be warm sulphur springs along its course, and the Indians regard it as one of the best hunting fields,

sheep being especially numerous on the mountains in which it heads, close by the international boundary, where it is separated by only a narrow divide from Ogilvie River, one of the head streams of the Peel river, and also from the head of the Porcupine, to which there is an Indian trail. Hence the miners call this Sheep River. The rocks along this stream are all sandstones, limestone and conglomerates, with many thin calcite veins. Large and dense timber prevails, and game is abundant.

Below the mouth of the Tat-on-duc several small streams enter, of which the Kandik on the north and the Kolto or Charley's River—at the mouth of which there used to be the home of an old Indian notability named Charley—are most important. About 160 miles from the boundary the Yukon flats are reached, and the center of another important mining district—that of Birch Creek and the Upper Tanana—at Circle City, the usual terminus of the trip up the Lower Yukon from St. Michael.

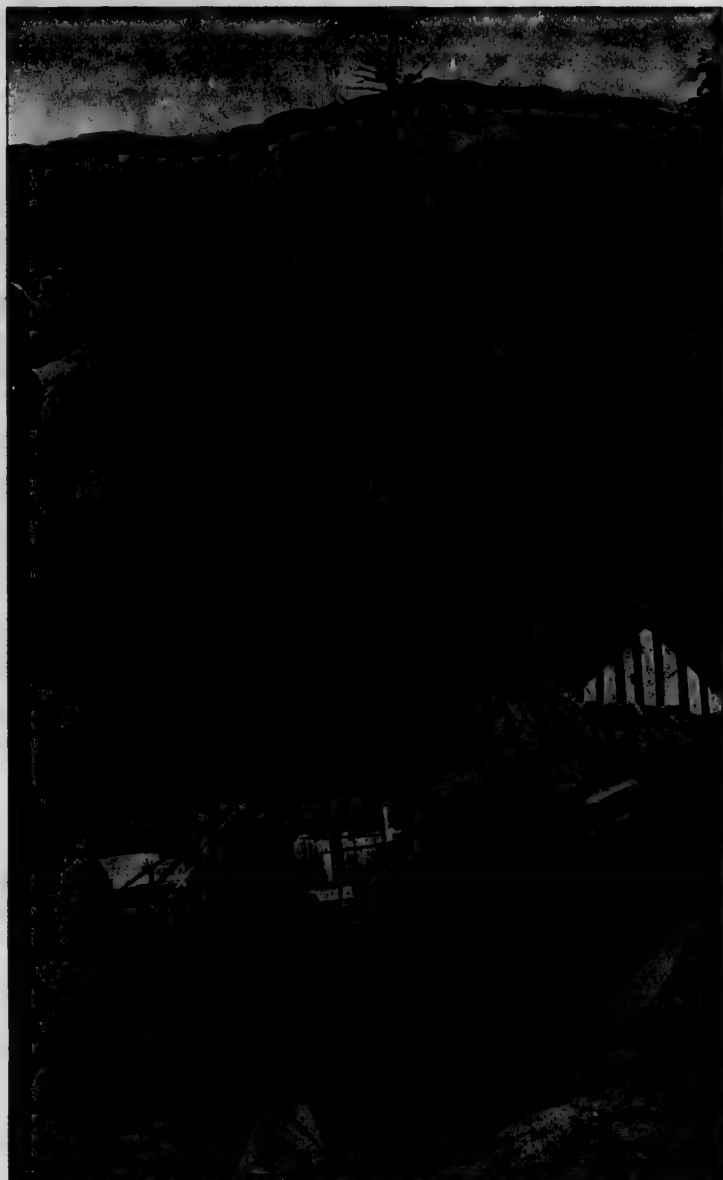
HISTORY AND CHARACTERISTICS OF THE UPPER YUKON VALLEY.

The sources of the Yukon are just within the northern boundary of British Columbia (Lat. 62 deg.) among a mass of mountains forming a part of the great uplift of the Coast range, continuous with the Sierras of California and the Puget Sound coast. Here spring the sources of the Stikeen, flowing southwest to the Pacific, of the Fraser, flowing south through British Columbia, and of the Liard flowing northeasterly to the Mackenzie. Headwaters of the Stikeen and Liard interlock, indeed, along an extensive but sinuous watershed having an elevation of 3,000 feet or less and extending east and west. There are, however, many wide and comparatively level bottom lands scattered throughout this region and numerous lakes. The coast ranges here have an average width of about eighty miles and border the continent as far north as Lynn Canal, where they trend inland behind the St. Elias Alps. Many of their peaks exceed 8,000 feet in height, but few districts have been explored west. Eastward of this mountain axis, and separated from it by the valleys of the Fraser and Columbia in the south and the Yukon-northward, is the Con-

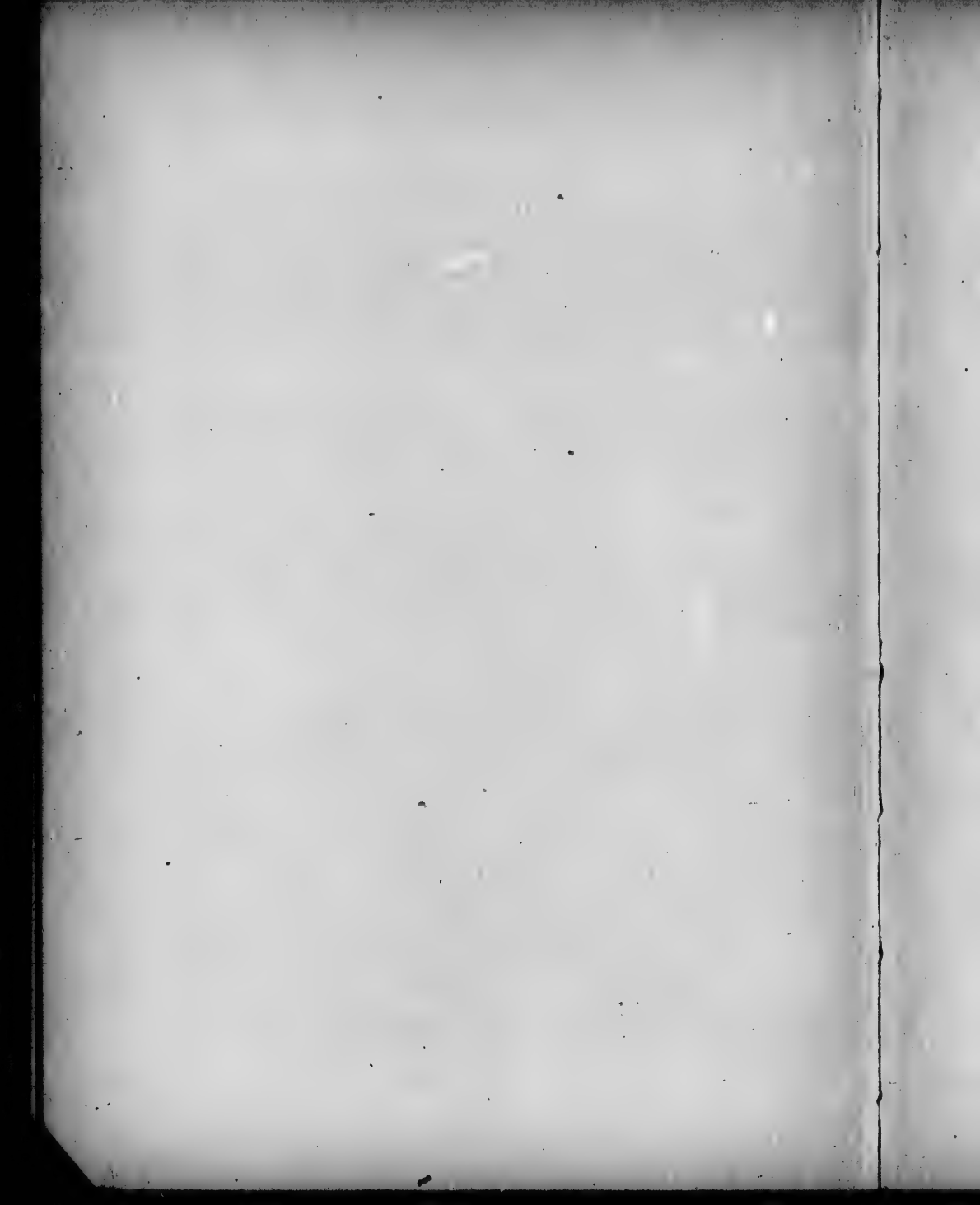
tinental Divide, or Rocky Mountains proper, which is broken through (as noted above) by the Liard, but north of that cañon-bound river forms the watershed between the Liard and Yukon and between the Yukon and Mackenzie. These summits attain a height of 7,000 to 9,000 feet, and rise from a very complicated series of ranges extending northward to the Arctic Ocean, and very little explored. The valley of the Yukon, then, lies between the Rocky Mountains, separating its drainage basin from that of the Mackenzie, and the Coast range and St. Elias Alps separating it from the sea. Granite is the principal rock in both these great lines of watershed uplift, and all the mountains show the effects of an extensive glaciation, and all the higher peaks still bear local remnants of the ancient ice-sheet.

The headwaters of the great river are gathered into three principal streams. First, the Lewes, easternmost, with its large tributaries, the Teslinto and Big Salmon; second, the Pelly, with its great western tributary, the MacMillan.

The Lewes River has been described. It was known to the fur traders as early as 1840, and the Chilkat and Chilkoot passes were occasionally used by their Indian couriers from that time on. The gold fields in British Columbia from 1863 onwards



SCENE IN JUNEAU — MOUNTAINS AND INDIAN HOUSES.



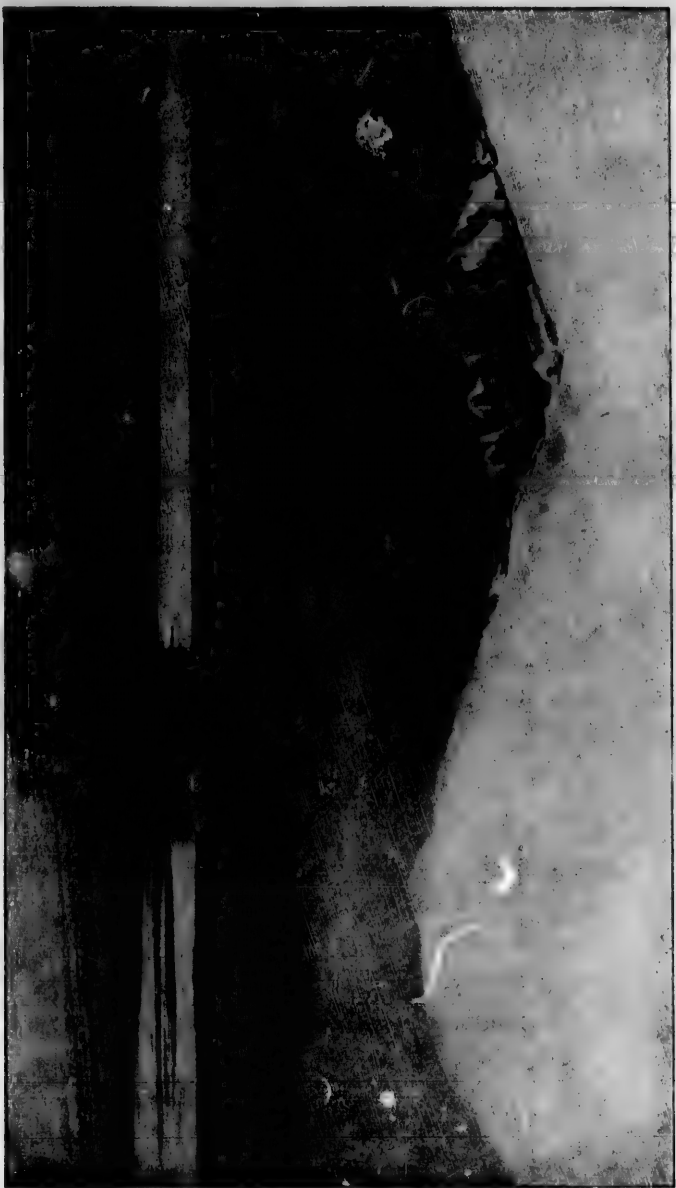
stimulated prospecting in the northern and coastal parts of that province, and in 1872 prospectors reached the actual headwaters of the Lewes from the south, but were probably not aware of it; and that country was not scientifically examined until the reconnaissance of Dr. G. M. Dawson in 1887. In 1866 Ketchum and La Barge, of the Western Union Telegraph survey, ascended the Lewes as far as the lakes still called Ketchum and La Barge. In 1883 Lieut. Frederick Schwatka, U. S. A., and an assistant named Hayes, and several Indians, made their way across from Taku inlet to the head of Tagish (or Tako) Lake, and descended the Lewes on a raft to Fort Selkirk, studying and naming the valley. From Fort Selkirk an entirely new route was followed toward the mountains forming the divide between the Yukon and the White and Copper rivers, which flow to the Gulf of Alaska, north of Mt. St. Elias. After discovering a pass little more than 5,000 feet high, they struck the Chityna River and followed that to the Copper River and thence to the coast. The Copper River Valley was thoroughly explored somewhat later by Lieuts. Abercrombie and Allen, U. S. A., who added greatly to the knowledge of that large river, which, however, seems to have no good harbor at its mouth. The miners began to use the Chilkoot Pass and the Lewes River route to

the Yukon district in 1884. Some additions were made to geography in this region by an exploring expedition dispatched to Alaska in 1890 by Frank Leslie's Weekly, under Messrs. N. J. Wells, E. J. Glave and A. B. Schanz. They entered by way of Chilkat pass and came to a large lake at the head of the Tah-keena tributary of the Lewes, which they named Lake Arkell, though it was probably the same earlier described by the Drs. Krause. Here Mr. Glave left the party and striking across the coast range southward discovered the headwaters of the Alsekh and descended to Dry Bay. At Forty-mile creek Mr. Wells and a party crossed over into the basin of the Tanana and increased the knowledge of that river. Mr. Schanz went down the Yukon and explored the lower region. In 1892 Mr. Glave again went to Alaska, demonstrated the possibility of taking pack horses over the Chilkat trail, and with an aid named Dalton made an extensive journey southward along the crest of the watershed between the Yukon valley and the coast.

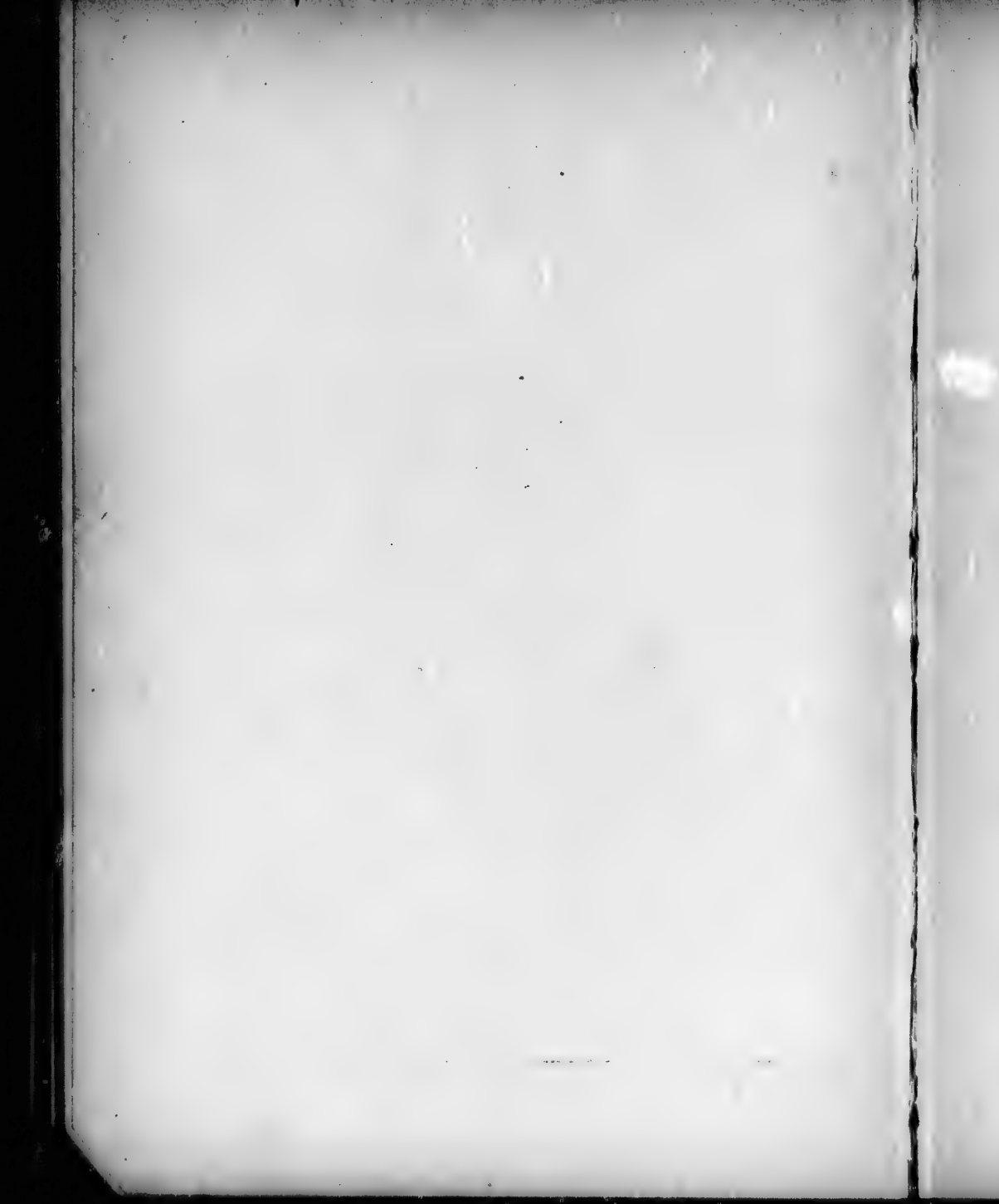
Turning now to the Pelly, we find that this was the earliest avenue of discovery. The Pelly rises in lakes under the 62nd parallel, just over a divide from the Finlayson and Frances Lakes, the head of the Frances River, the northern source of the Liard. This region was entered by the Hudson Bay Com-

pany as early as 1834, and gradually exploring the Liard River and its tributaries, in 1840 Robert Campbell crossed over the divide north of Lake Finlayson (at the head of the Frances), and discovered (at a place called Pelly Banks) a large river flowing northwest which he named Pelly. In 1843 he descended the river to its confluence with the Lewes (which he then named), and in 1848 he built a post for the H. B. Company at that point, calling it Fort Selkirk. This done, in 1850 Campbell floated down the river as far as the mouth of the Porcupine, where three years previously (1847) Fort Yukon had been established by Mr. Murray, who (preceded by James Bell in 1842) crossed over from the mouth of the Mackenzie. The Yukon may thus be said to have been "discovered" at several points independently. The Russians, who knew it only at the mouth, called it Kwikhpak, after an Eskimo name. The English at Fort Yukon learned that name from the Indians there, and the upper river was the Pelly. The English and Russian traders soon met, and when Campbell came down in 1850 the identity of the whole stream was established. The name Yukon gradually took the place of all others on English maps and is now recognized for the whole stream from the junction of the Lewes and Pelly to the delta.

The Yukon basin, east of the Alaskan boundary, is known in Canada as the Yukon district, and contains about 150,000 square miles. This is nearly equal to the area of France, is greater than that of the United Kingdom of Great Britain and Ireland by 71,000 square miles, and nearly three times bigger than that of the New England states. To this must be added an area of about 180,000 square miles, west of the boundary, drained by the Yukon upon its way to the sea through Alaska. Nevertheless, Dr. G. M. Dawson and other students of the matter are of the opinion that the river does not discharge as much water as does the Mackenzie—nor could it be expected to do so, since the drainage area of the Mackenzie is more than double that of the Yukon, while the average annual precipitation of rain over the two areas seems to be substantially similar. Remembering these figures and that the basin of the Mississippi has no less than 1,225,000 square miles as compared with the 330,000 square miles of the Yukon basin, it is plain that the statement often heard that the Yukon is next to the Mississippi in size, is greatly exaggerated. In fact, its proportions, from all points of view, are exceeded by those of the Nile, Ganges, St. Lawrence and several other rivers of considerably less importance than the Mississippi.



EARLY MORNING AT JUNEAU.



Resuming the historical outline, a short paragraph will suffice to complete the simple story down to the year 1896.

Robert Campbell had scarcely returned from his river voyage to his duties at Fort Selkirk when he discovered that its location in the angle between the rivers was untenable, owing to ice-jams and floods. The station was therefore moved in the season of 1852 across to the west bank of the Yukon, a short distance below the confluence, and new buildings were erected. These had scarcely been completed, when, on August 1st, a band of Chilkat Indians from the coast came down the river and early in the morning seized upon the post, surprising Mr. Campbell in bed, and ordered him to take his departure before night. They were not at all rough with him or his few men, but simply insisted that they depart, which they did, taking such personal luggage as they could put into a boat and started down stream. The Indians then pillaged the place, and after feasting on all they could eat and appropriating what they could carry away, set fire to the remainder and burned the whole place to the ground. One chimney still stands to mark the spot, and others lie where they fell. This act was not dictated by wanton destructiveness on the part of the Chilkats—bad as they undoubtedly were and

are; but was in pursuance of a theory. The establishment of the post there interfered with the monopoly of trade that they had enjoyed theretofore with all the Indians of the interior, to whom they brought salable goods from the coast, taking in exchange furs, copper, etc., at an exorbitant profit, which they enforced by their superior brutality. The Hudson Bay Company was robbing them of this, hence the demolition of the post, which was too remote to be profitably sustained against such opposition.

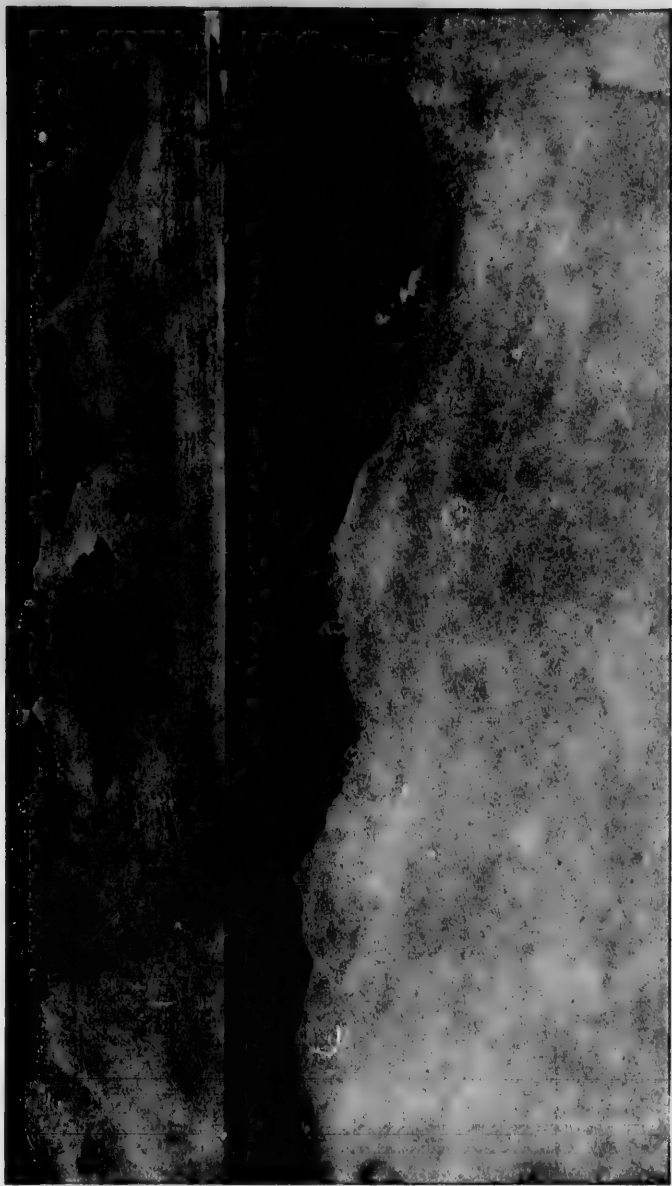
A little way down the river Mr. Campbell met a fleet of boats bringing up his season's goods, and many friendly Indians. These were eager to pursue the robbers, but Campbell thought it best not to do so. He turned the supply boats back to Fort Yukon and led his own men up the Pelly and over the pass to the Frances and so down the Liard to Port Simpson, on the Mackenzie. Such is the story of the ruins of Fort Selkirk. Fort Yukon flourished as the only trading post until the purchase of Alaska by the United States, when Captain Raymond, an army officer, was sent to inform the factor there that his post was on United States territory, and to request him to leave. He did so as soon as Rampart House could be built to take its place up the Porcupine. Old Fort Yukon then fell into ruins, and Rampart House itself was soon abandoned. In 1873 an op-

position appeared in the independent trading house of Harper & McQuestion, men who had come into the country from the south, after long experience in the fur trade. They had posts at various points, occupied Fort Reliance for several years, and in 1886 established a post at the mouth of the Stewart River for the miners who had begun to gather there two years before. Many maps mark "Reed's House" as a point on the upper Stewart, but no such a trading-post ever existed there, although there was a fishing station and shelter-hut on one of its upper branches at an early day. This firm became the representatives of the Alaska Commercial Company (a San Francisco corporation) and opened a store in 1887 at Forty Mile, where they still do business.

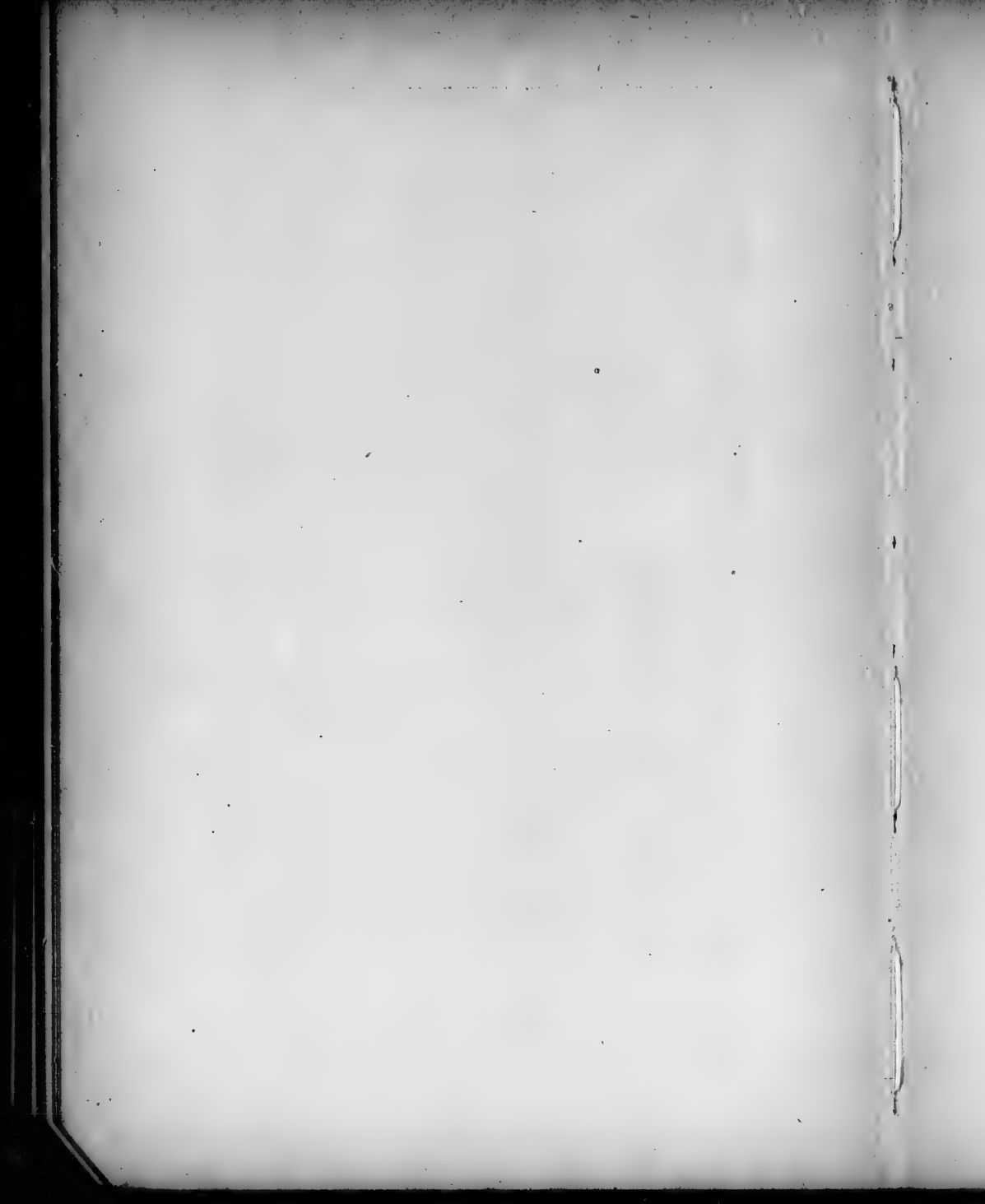
Gold Discoveries.—The presence of fine float gold in river sands was early discovered by the Hudson Bay Company men, but in accordance with the former policy of that company no mining was done and as little said about it as possible. The richness of the Cassiar mines led to some prospecting northward as early as 1872, and by 1880 wandering gold hunters had penetrated to the Teslinto, where for several years \$8 to \$10 a day of fine gold was sluiced out during the season by the small colony. In 1886 Cassiar Bar, on the Lewes, below there, was opened, and a party of four took out

\$6,000 in 30 days, while other neighboring bars yielded fair wages. By that time Stewart River was becoming attractive, and many miners worked placers there profitably in 1885, '86 and '87. During the fall of 1886 three or four men took the engines out of the little steamboat "New Racket," which was laid up for the winter there, and used them to drive a set of pumps lifting water into sluice-boxes; and with this crude machinery each man cleared \$1,000 in less than a month. A judicious estimate is that the Stewart River placers yielded \$100,000 in 1885 and '86.

Prospecting went on unremittingly, but nothing else was found of promise until 1886, when coarse gold was reported upon Forty Mile Creek, or the Shitando River, as it was known to the Indians, and a local rush took place to its cañons, the principal attraction being Franklin Gulch, named after its discoverer. Three or four hundred men gathered there by the season of 1887, and all did well. This stream is a "bed-rock" creek—that is, one in the bed of which there is very little drift; and in many places the bed-rock was scraped with knives to get the little loose stuff out of crannies. Some nuggets were found. At its mouth are extensive bars along the Yukon, which carry gold throughout their depth. During 1888 the season was very unfavorable and



HARBOR OF SITKA.



not much was accomplished. Sixty-mile Creek was brought to notice, and Miller Gulch proved richer than usual. It is one of the headwaters of Sixty Mile, and some 70 miles from the mouth of the river where, in 1892, a trading store, saw-mill and little wintering-town was begun. Miller Creek is about 7 miles long, and its valley is filled with vast deposits of auriferous drift. In 1892 rich strikes were made and 125 miners gathered there, paying \$10 a day for help, and many making fortunes. One clean-up of 1,100 ounces was reported. Glacier Creek, a neighboring stream, exhibited equal chances and drew many claimants, some of whom migrated thither in mid-winter, drawing their sleds through the woods and rocks with the mercury 30 degrees below zero. All of these gulches and other golden headwaters on both Forty Mile and Sixty Mile Creek, are west of the boundary in Alaska; but the mouths of the main streams and supply points are in Canadian territory. In all, the great obstacle is the difficulty of getting water up on the bars without expensive machinery; and the same is true of the rich gravel along the banks of the Yukon itself. Birch Creek was the next find of importance, and was promising enough to draw the larger part of the local population, which by this time had been considerably increased, for the news of the rich-

ness of the Forty Mile gulches had reached the outside world and attracted adventurous men and not a few women not only from the coast, but from British Columbia and the United States. A rival to Harper & McQuestion, agents of the Alaska Commercial Company, appeared in the North American Transportation and Trading Company, which increased the transportation service on the Yukon River, by which most of the new arrivals entered, and by establishing large competitive stores at Fort Cudahy (Forty Mile) and elsewhere reduced the price of food and other necessities. About this time, also, the Canadian government sent law officers and a detachment of mounted police, so that the Yukon District began to take a recognized place in the world.

Birch Creek is really a large river rising in the Tanana Hills, just west of the boundary and flowing northwest, parallel with the Yukon, to a debouchment some 20 miles west of Fort Yukon. Between the two rivers lie the "Yukon Flats," and at one point they are separated by only six miles. Here at the Yukon end of the road arose Circle City, so-called from its proximity to the Arctic Circle. This is an orderly little town of regular streets, and has a recorder of claims, a store, etc.

Birch Creek has been thoroughly explored, and

in 1894 yielded good results. The gold was in coarse flakes and nuggets, so that \$40 a day was made by some men, while all did well. The drift is not as deep here as in most other streams, and water can be applied more easily and copiously—a vast advantage. Molymute, Crooked, Independence, Mastadon and Preacher creeks are the most noteworthy tributaries of this rich field.

The Koyukuk River, which flows from the borders of the Arctic Ocean, gathering many mountain tributaries, to enter the Yukon at Nulato, was also prospected in 1892, '93 and '94, and indications of good placers have been discovered there, but the northerly, exposed and remote situation has caused them to receive little attention thus far.

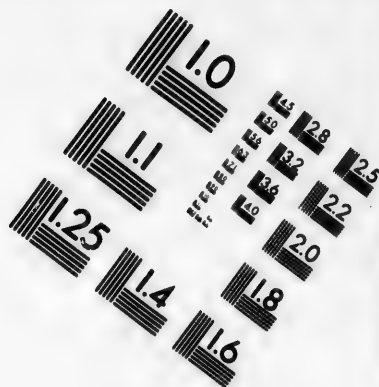
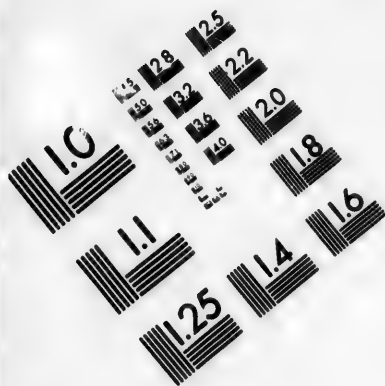
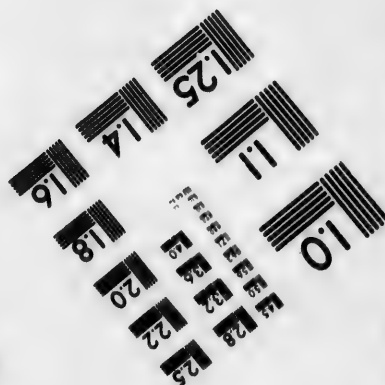
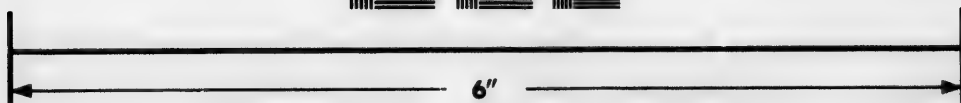
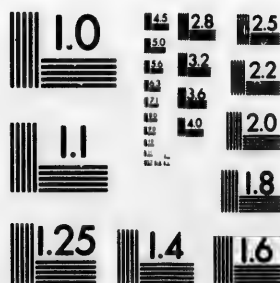


IMAGE EVALUATION TEST TARGET (MT-3)



Photographic Sciences Corporation

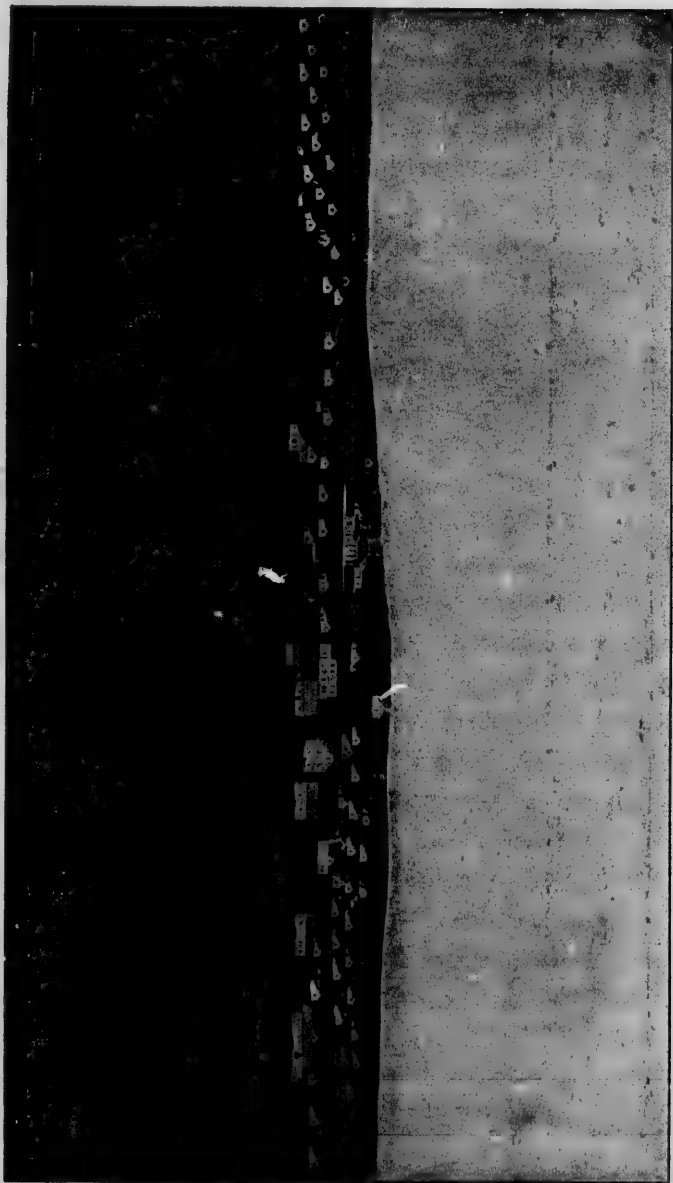
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THE KLONDIKE.

During the autumn of 1896 several men and women, none of whom were "old miners," discouraged by poor results lower down the river resolved to try prospecting in the Klondike gulch. They were laughed at and argued with; were told that prospectors years ago had been all over that valley, and found only the despised "flour gold," which was too fine to pay for washing it out. Nevertheless they persisted and went to work. Only a short time elapsed, when, on one of the lower southside branches of the stream they found pockets of flakes and nuggets of gold far richer than anything Alaska had ever shown before. They named the stream Bonanza, and a small tributary El Dorado. Others came and nearly everyone succeeded. Before spring nearly a ton and a half of gold had been taken from the frozen ground. Nuggets weighing a pound (troy) were found. A thousand dollars a day was sometimes saved despite the rudeness of the methods, but these things happened when pockets were struck. Probably the total clean-up from January to June was not less than \$1,500,000. The report



VILLAGE OF ST. PAUL

spread and all those in the interior of Alaska concentrated there, where a "camp" of tents and shanties soon sprang up at the mouth of the Klondike called Dawson City. A correspondent of the New York Sun describes it as beautifully situated, and a very quiet, orderly town, due to the strict supervision of the Canadian mounted police, who allow no pistols to be carried, but a great place for gambling with high stakes. It bids fair to become the mining metropolis of the northwest, and had about 3,000 inhabitants before the advance guard of the present "rush" reached there.

Hundreds of claims were staked out and worked in all the little gulches opening along Bonanza, Eldorado, Hunker, Bear and other tributaries of the Klondike, and of Indian River, a stream thirty miles south of it, and a greater number seem to be of equal richness with those first worked. All this is within a radius south and east of 20 miles from Dawson City, and most of it far nearer. The country is rough, wooded hills, and the same trouble as to water is met there as elsewhere, yet riches were obtained by many men in a few weeks without exhausting their claims.

So remote and shut in has this region been in the winter that no word of this leaked out until the river opened and a party of successful miners came

down to the coast and took passage on the steamer Excelsior for San Francisco. They arrived on July 14, and no one suspected that there was anything extraordinary in the passenger list or cargo, until a procession of weather beaten men began a march to the Selby Smelting works, and there began to open sacks of dust and nuggets until the heap made something not seen in San Francisco since the days of '49. The news flashed over the world and aroused a fire of interest; and when three days later the Portland came into Seattle, bringing other miners and over \$1,000,000 in gold, there was a rush to go north which bids fair to continue for months to come, for one of the articles of faith in the creed of the Yukon miner is that many other gulches will be found as rich as these. One elderly man, who went in late last fall and with partners took four claims on Eldorado Creek, told a reporter that his pickings had amounted to \$112,000, and that he was confident that the ground left was worth \$2,000,000 more. "I want to Say," he exclaimed, "that I believe there is gold in every creek in Alaska. Certain on the Klondike the claims are not spotted. One seems to be as good as another. It's gold, gold, gold, all over. It's yards wide and deep. All you have to do is to run a hole down."

One might go on quoting such rhapsodies, aris-

ing from success, to end of the book, but it is needless, for every newspaper has been full of them for a month.

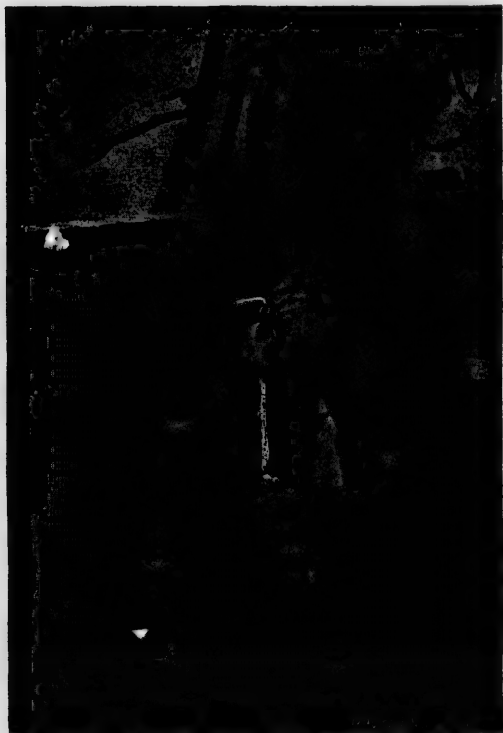
One man and his wife got \$135,000; another, formerly a steamboat deck-hand, \$150,000; another, \$115,000; a score or more over \$50,000, and so on. These sums were savings after having the heavy expenses of the winter, and most of them had dug out only a small part of their ground.

It is curious in view of this success to read the only descriptive note the present writer can discover in early writings as to this gold river. It occurs in Ogilvie's report of his explorations of 1887, and is as follows: "Six and a half miles above Reliance the Ton-Dac River of the Indians (Deer River of Schwatka) enter from the east. It is a small river about 40 yards wide at the mouth and shallow; the water is clear and transparent and of a beautiful blue color. The Indians catch great numbers of salmon here. A miner had prospected up this river for an estimated distance of 40 miles in the season of 1887. I did not see him."

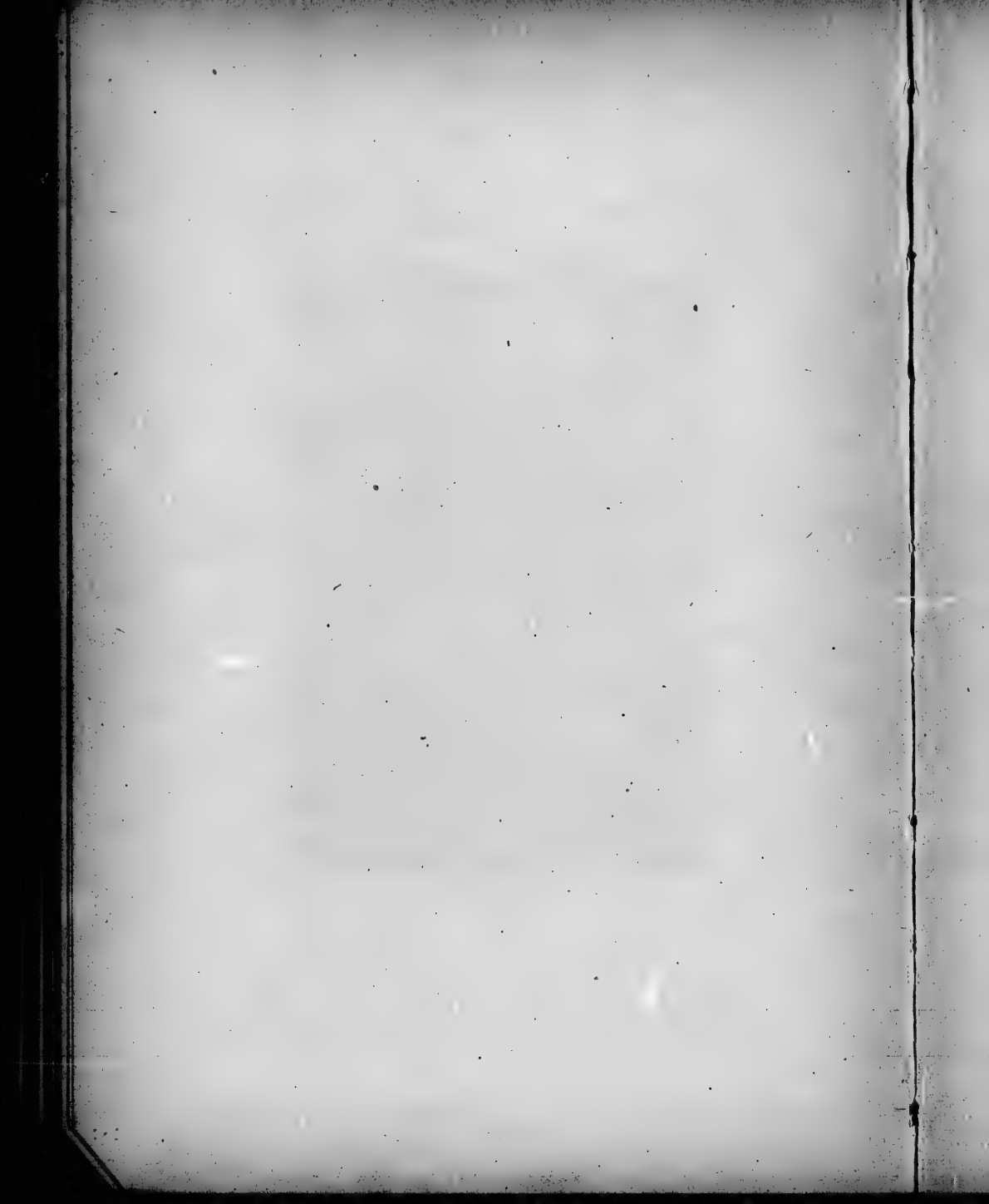
THE METHODS OF PLACER MINING

in the Klondike region and elsewhere along the Yukon are different from those pursued elsewhere, owing to the fact that from a point about three feet below the surface the ground is permanently frozen. The early men tried to strip off the gravel down to the gold lying in its lower levels or beneath it, upon the bed rock, and found it exceedingly slow and laborious work; moreover, it was only during the short summer that any work could be done. Now, by the aid of fires they sink shafts and then tunnel along the bed rock where the gold lies. A returned miner described the process as follows, pointing out the great advantage of being able to work under ground during the winter:

"The miners build fires over the area where they wish to work and keep these lighted over that territory for the space of twenty-four hours. Then the gravel will be melted and softened to a depth of perhaps six inches. This is then taken off and other fires are built until the gold bearing layer is reached. When the shaft is down that far other fires are built at the bottom, against the sides of the layer and tunnels made in the same manner. Blasting will do



A NATIVE.



no good, the charge not cracking off but blowing out of the hole. The matter taken out and containing the gold is piled up until spring, when the torrents come down, and is panned and cradled by these. It is certainly very hard labor."

Another quotation may be given as a practical example of this process:

"The gold so far has been taken from Bonanza and Eldorado, both well named, for the richness of the placers is truly marvelous. Eldorado, thirty miles long, is staked the whole length and as far as worked has paid.

"One of our passengers, who is taking home \$100,000 with him, has worked one hundred feet of his ground and refused \$200,000 for the remainder, and confidently expects to clean up \$400,000 and more. He has in a bottle \$212 from one pan of dirt. His pay dirt while being washed averaged \$250 an hour to each man shoveling in. Two others of our miners who worked their own claim cleaned up \$6,000 from one day's washing.

"There is about fifteen feet of dirt above bed rock, the pay streak averaging from four to six feet, which is tunnelled out while the ground is frozen. Of course, the ground taken out is thawed by building fires, and when the thaw comes and water rushes in they set their sluices and wash the dirt. Two of

our fellows thought a small bird in the hand worth a large one in the bush, and sold their claims for \$45,000, getting \$4,500 down, and the remainder to be paid in monthly installments of \$10,000 each. The purchasers had no more than \$5,000 paid. They were twenty days thawing and getting out dirt. Then there was no water to sluice with, but one fellow made a rocker, and in ten days took out the \$10,000 for the first installment. So, tunnelling and rocking, they took out \$40,000 before there was water to sluice with."

LEGAL ASPECT OF ALASKA.

Commissioner Hermann, of the General Land Office, has announced that the following laws of the United States extend over Alaska, where the general land laws do not apply:

First—The mineral land laws of the United States.

Second—Town-site laws, which provide for the incorporation of town-sites and acquirement of title thereto from the United States Government by the town-site trustees.

Third—The laws providing for trade and manufactures, giving each qualified person 160 acres of land in a square and compact form.

The coal land regulations are distinct from the mineral regulations or laws, and as in the case of the general land laws, Alaska is expressly exempt from their jurisdiction.

On the part of Canada, however, the provisions of the Real Property act of the Northwest Territories will be extended to the Yukon country by an order in council, a register will be appointed, and a land title office will be established.

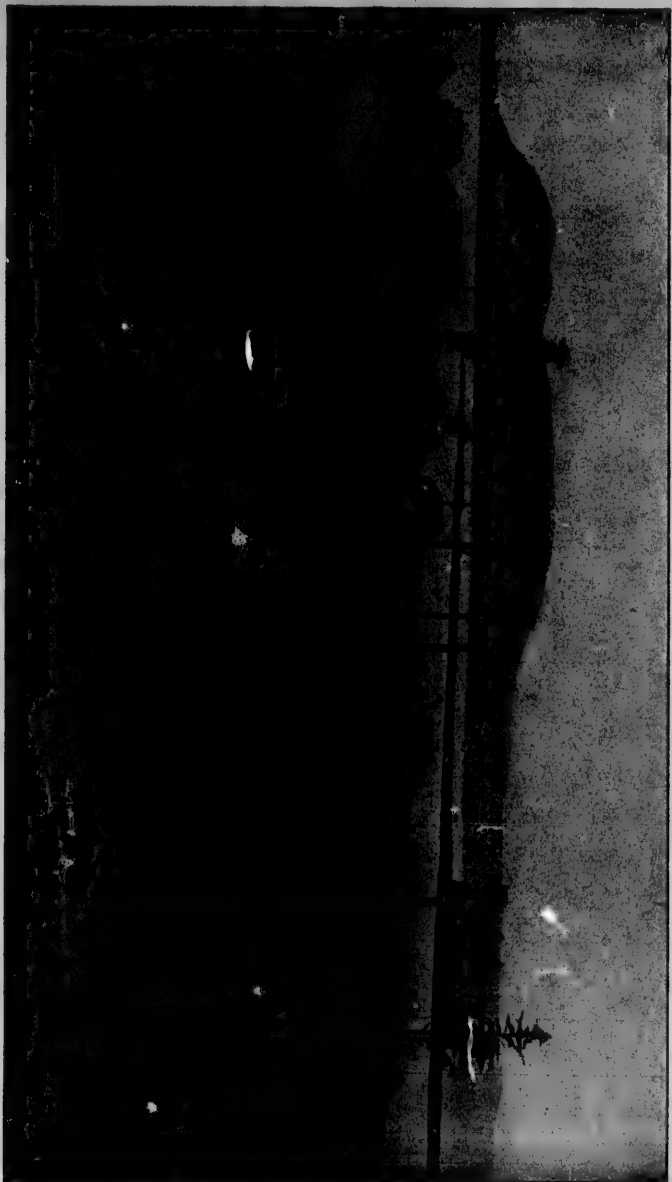
The act approved May 17, 1884, providing a civil government for Alaska, has this language as to mines and mining privileges:

"The laws of the United States relating to mining claims and rights incidental thereto shall, on and after the passage of this act, be in full force and effect in said district of Alaska, subject to such regulations as may be made by the Secretary of the Interior and approved by the President," and "parties who have located mines or mining privileges therein, under the United States laws applicable to the public domain, or have occupied or improved or exercised acts of ownership over such claims, shall not be disturbed therein, but shall be allowed to perfect title by payment so provided for."

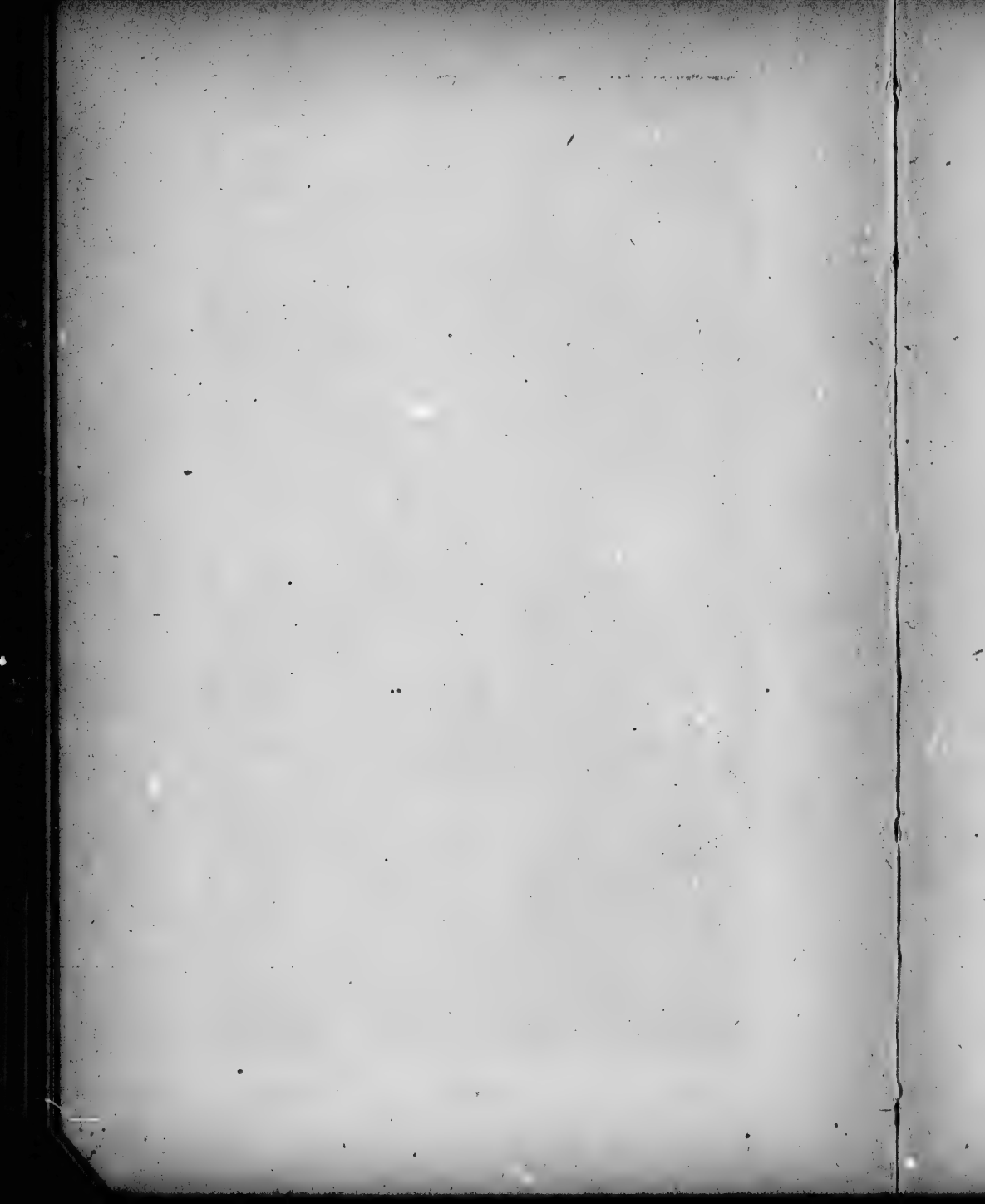
There is still more general authority. Without the special authority, the act of July 4, 1866, says: "All valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and purchase, and lands in which these are found to occupation and purchase by citizens of the United States and by those who have declared an intention to become such, under the rules prescribed by law and according to local customs or rules of miners in the several mining districts, so far as the same are applicable and not inconsistent with the laws of the United States."

The patenting of mineral lands in Alaska is not a new thing, for that work has been going on, as the cases have come in from time to time, since 1884.

One of the difficulties that local capitalists find in their negotiations for purchase of mining properties on the Yukon is the lack of authenticated records of owners of claims. Different practices prevail on the two sides of the line and cause more or less confusion. The practice has been at most of the new camps to call a miners' meeting at which one of the parties was elected recorder, and he proceeded to enter the bearings of stakes and natural marks to define claims. Sometimes the recorder would give



THE POINT AND BEACH AT METLAKHITLA.



a receipt for a fee allowed by common consent for recording, and also keep a copy for future reference, but in a majority of cases even this formality was dispensed with, and the only record kept was the rough minutes made at the time.

On the Canadian side a different state of affairs exists. The Dominion Government has sent a commissioner who is empowered to report officially all claims, and while no certificate is issued to the owners thereof, properties are thoroughly defined and their metes and bounds established. The commissioner in the Klondike district, whose name is Constantine, also exercises semi-judicial functions, and settles disputes to the best of his ability, appeal lying to the Ottawa Government.

As to courts and the execution of civil and criminal law generally, none were existent in the upper Yukon Valley on the American side of the line during 1897. The nearest United States judge was at Sitka. At Circle City and other centers of population the people had organized into a sort of town-meeting for the few public matters required; and a sort of vigilance committee took the place of constituted authority and police. As a matter of fact, however, the people were quiet and law-abiding and little need for the machinery of law is likely to arise before courts, etc., are set up. A movement toward send-

ing a garrison of United States troops thither was vetoed by the War Department.

Canada, however, awoke to the realization that her interests were in jeopardy, and took early steps to profit by the wealth which had been discovered within her borders and the international business that resulted. The natural feeling among the Canadians was, and is, that the property belongs to the Canadian public, and that no good reason exists why the mineral and other wealth should be exhausted at once, mainly by outsiders, as has largely happened in the case of Canada's forests. A prohibitory policy was urged by some, but this seemed neither wise nor practicable; and the Dominion Government set at work to save as large a share as it could. As there are gold fields on the Alaska side of the line, and the approaches lie through United States territory, a spirit of reciprocal accommodation was necessary. One difficulty was averted last year by President Cleveland's veto of the Immigration bill, one provision of which would have prevented Canadian laborers drawing wages in this country, and probably would have provoked a retaliatory act.

Canada has already placed customs officers on the passes and at the Yukon crossing of the boundary to collect customs duties not only on merchandise

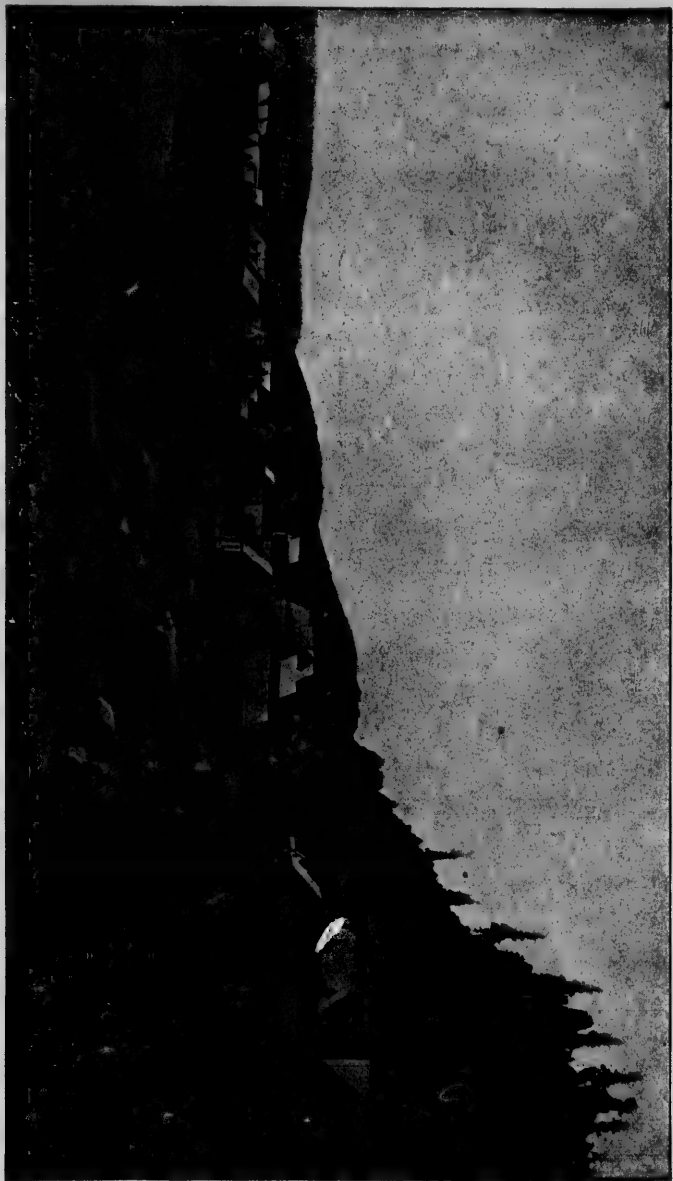
but on miners' personal outfits. There is practically no exception, and the duty comes below 20 per cent. on but few articles. On most of the goods the duty is from 30 to 35 per cent., and in several instances higher, but the matter may be very simply adjusted by purchasing tools and outfits in Victoria or Vancouver, for thus far the United States has placed no corresponding obstruction in the way of Canadian travellers to the gold-fields, but, on the contrary, has made Dyea a sub-port of entry, largely to accommodate British transportation lines. The Canadian Government is represented in that region now only by customs officers and 20 mounted police, but it is taking steps to garrison the whole upper Yukon Valley with its mounted police—a body of officers whose functions are half military, half civil, and which, it may as well be conceded once for all, cannot be trifled with. There is no question but that they will do their level best to enforce the laws to the utmost. The commander of each detachment will be constituted a magistrate of limited powers, so that civil examinations and trials may be speedily conducted.

The plan is to erect a strong post a short distance north of the sixtieth degree of latitude, just above the northern boundary of British Columbia, and beyond the head of the Lynn Canal, where the Chil-

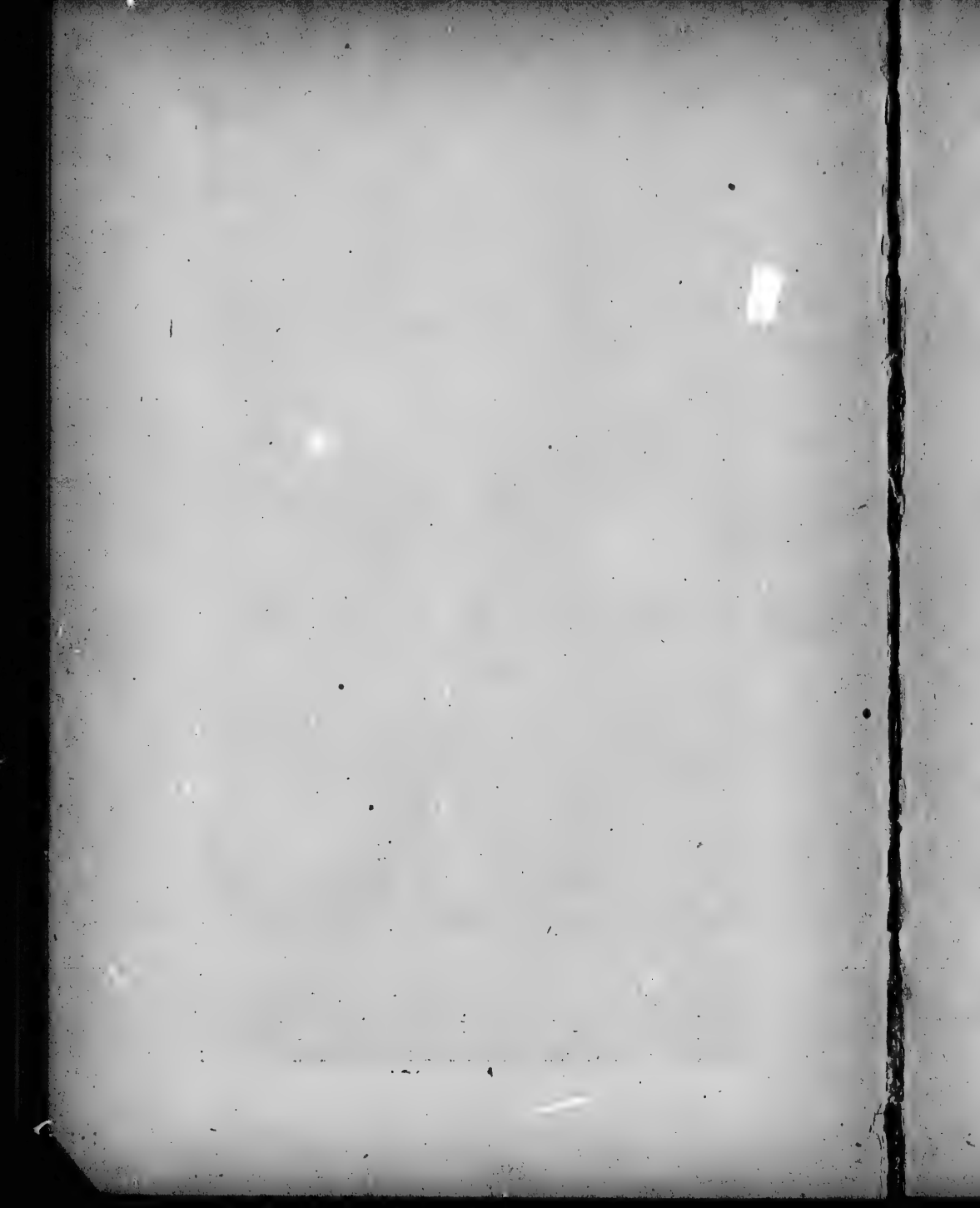
koot Pass and the White Pass converge. This post will command the southern entrance to the whole of that territory. Further on small police posts will be established, about fifty miles apart, down to Fort Selkirk, while another general post will patrol the river near the international boundary, with headquarters, probably, in the Klondike valley.

The mining regulations of Canada, applying to the Yukon placer claims, are as follows:

"Bar diggings" shall mean any part of a river over which water extends when the water is in its flooded state and which is not covered at low water. Mines on benches shall be known as "bench diggings," and shall for the purpose of defining the size of such claims be excepted from dry diggings. "Dry diggings" shall mean any mine over which a river never extends. "Miner" shall mean a male or female over the age of eighteen, but not under that age. "Claim" shall mean the personal right of property in a placer mine or diggings during the time for which the grant of such mine or diggings is made. "Legal post" shall mean a stake standing not less than four feet above the ground and squared on four sides for at least one foot from the top. "Close season" shall mean the period of the year during which placer mining is generally suspended. The period to be fixed by the gold commissioner



FORT WRANGELL.



in whose district the claim is situated. "Locality" shall mean the territory along a river (tributary of the Yukon) and its affluents. "Mineral" shall include all minerals whatsoever other than coal.

1. Bar diggings. A strip of land 100 feet wide at highwater mark and thence extending into the river to its lowest water level.

2. The sides of a claim for bar diggings shall be two parallel lines run as nearly as possible at right angles to the stream, and shall be marked by four legal posts, one at each end of the claim at or about high water mark; also one at each end of the claim at or about the edge of the water. One of the posts shall be legibly marked with the name of the miner and the date upon which the claim is staked.

3. Dry diggings shall be 100 feet square and shall have placed at each of its four corners a legal post, upon one of which shall be legibly marked the name of the miner and the date upon which the claim was staked.

4. Creek and river claims shall be 500 feet long, measured in the direction of the general course of the stream, and shall extend in width from base to base of the hill or bench on each side, but when the hills or benches are less than 100 feet apart the claim may be 100 feet in depth. The sides of a claim shall be two parallel lines run as nearly as

possible at right angles to the stream. The sides shall be marked with legal posts at or about the edge of the water and at the rear boundary of the claim. One of the legal posts at the stream shall be legibly marked with the name of the miner and the date upon which the claim was staked.

5. Bench claims shall be 100 feet square.

6. In defining the size of claims they shall be measured horizontally, irrespective of inequalities on the surface of the ground.

7. If any person or persons shall discover a new mine and such discovery shall be established to the satisfaction of the gold commissioner, a claim for the bar diggings 750 feet in length may be granted. A new stratum of auriferous earth or gravel situated in a locality where the claims are abandoned shall for this purpose be deemed a new mine, although the same locality shall have previously been worked at a different level.

8. The forms of application for a grant for placer mining and the grant of the same shall be according to those made, provided or supplied by the gold commissioner.

9. A claim shall be recorded with the gold commissioner in whose district it is situated within three days after the location thereof if it is located within ten miles of the commissioner's office. One day

extra shall be allowed for making such record for every additional ten miles or fraction thereof.

10. In the event of the absence of the gold commissioner from his office, entry for a claim may be granted by any person whom he may appoint to perform his duties in his absence.

11. Entry shall not be granted for a claim which has not been staked by the applicant in person in the manner specified in these regulations. An affidavit that the claim was staked out by the applicant shall be embodied in the application.

12. An entry fee of \$15 shall be charged the first year and an annual fee of \$100 for each of the following years.

13. After recording a claim the removal of any post by the holder thereof or by any person acting in his behalf for the purpose of changing the boundaries of his claim shall act as a forfeiture of the claim.

14. The entry of every holder of a grant for placer mining must be renewed and his receipt relinquished and replaced every year, the entry fee being paid each year.

15. No miner shall receive a grant for more than one mining claim in the same locality; but the same miner may hold any number of claims by purchase, and any number of miners may unite to work their

claims in common upon such terms as they may arrange, provided such agreement be registered with the Gold Commissioner and a fee of \$5 for each registration.

16. Any miner may sell, mortgage, or dispose of his claims, provided such disposal be registered with and a fee of \$2 paid to the Gold Commissioner.

17. Every miner shall, during the continuance of his grant, have the exclusive right of entry upon his own claim for the miner-like working thereof, and the construction of a residence thereon, and shall be entitled exclusively to all the proceeds realized therefrom; but he shall have no surface rights therein, and the Gold Commissioner may grant to the holders of adjacent claims such rights of entry thereon as may be absolutely necessary for the working of their claims, upon such terms as may to him seem reasonable. He may also grant permits to miners to cut timber thereon for their own use, upon payment of the dues prescribed by the regulations in that behalf.

18. Every miner shall be entitled to the use of so much of the water naturally flowing through or past his claim, and not already lawfully appropriated as shall in the opinion of the Gold Commissioner be necessary for the due working thereof, and shall be entitled to drain his own claim free of charge.

19. A claim shall be deemed to be abandoned and open to occupation and entry by any person when the same shall have remained unworked on working days by the grantee thereof or by some person in his behalf for the space of seventy-two hours unless sickness or some other reasonable cause may be shown to the satisfaction of the Gold Commissioner, or unless the grantee is absent on leave given by the commissioner, and the Gold Commissioner, upon obtaining satisfactory evidence that this provision is not being complied with, may cancel the entry given for the claim.

20. If the land upon which a claim has been located is not the property of the Crown it will be necessary for the person who applies for entry to furnish proof that he has acquired from the owner of the land the surface right before entry can be granted.

21. If the occupier of the lands has not received a patent therefor, the purchase money of the surface rights must be paid to the Crown and a patent of the surface rights will issue to the party who acquired the mining rights. The money so collected will either be refunded to the occupier of the land when he is entitled to a patent therefor or will be credited to him on account of payment for land.

22. When the party obtaining the mining rights

cannot make an arrangement with the owner thereof for the acquisition of the surface rights it shall be lawful for him to give notice to the owner or his agents or the occupier to appoint an arbitrator to act with another arbitrator named by him in order to award the amount of compensation to which the owner or occupant shall be entitled:

The royalty and reserve additions to this, made since the recent discoveries and on account of them, are as follows:

1. A royalty of 10 per cent will be collected for the government on all amounts taken out of any one claim up to \$500 a week, and after that 20 per cent. This royalty will be collected on gold taken from streams already being worked, but in regard to all future discoveries the government proposes

2. That upon every river and creek where mining locations shall be staked out every alternate claim shall be the property of the government.

These regulations, say the Canadians, are made with the purpose of developing a country which is capable of supporting a large permanent population and varied industries. Whether they can be enforced remains to be seen, and difficulties will certainly attend the collection of a royalty on gold-dust. The effect of these regulations, it is believed by the authors, will

be to encourage permanent settlement and the treatment of mining as a regular industry and not simply as an adventurous speculation. Another effect, undoubtedly, will be to cause immigrants, including Canadians themselves, to prospect and mine on the United States side of the line, whenever they have an equal opportunity for success.

The boundary dispute does not as yet seriously affect the question of rights and privileges in the new gold regions, as the disputed part of the line, southeast of Alaska, runs through a region not yet occupied, and practically the whole of Lynn Canal is administered by the United States, and the Canadians act as though it were decided that their boundary was farther inland than some of them pretend. From Mt. St. Elias north, the 141st meridian is the undisputed boundary, and this has been fixed by an international commission, crossing the Yukon at a marked point near the mouth of Forty Mile Creek, nearly or quite all of the diggings upon which are within Alaskan territory, as also are the valuable placers on Birch and Miller creeks. It will be a matter of extreme difficulty along this part of the boundary to prevent smuggling, to discover and collect Canadian royalties, and to capture criminals except by international coöperation.

UNITED STATES MINING LAWS.

TITLE XXXII, CHAPTER 6.

Section 2318. In all cases lands valuable for minerals shall be reserved from sale, except as otherwise expressly directed by law.

Sec. 2319. All valuable mineral deposits in lands belonging to the United States, both surveyed and unsurveyed, are hereby declared to be free and open to exploration and purchase, and the lands in which they are found to occupation and purchase, by citizens of the United States and those who have declared their intention to become such, under regulations prescribed by law, and according to the local customs or rules of miners in the several mining districts, so far as the same are applicable and not inconsistent with the laws of the United States.

Sec. 2320. Mining-claims upon veins or lodes of quartz or other rock in place bearing gold, silver, cinnabar, lead, tin, copper, or other valuable deposits, heretofore located, shall be governed as to length along the vein or lode by the customs, regulations, and laws in force at the date of their location. A mining-claim located after the tenth day of May, 1872, whether located by one or more per-

sons, may equal, but shall not exceed 1,500 feet in length along the vein or lode; but no location of a mining-claim shall be made until the discovery of the vein or lode within the limits of the claim located. No claim shall exceed more than 300 feet on each side of the middle of the vein at the surface, nor shall any claim be limited by any mining regulation to less than twenty-five feet on each side of the middle of the vein at the surface, except where adverse rights existing on the tenth day of May, 1872, render such limitation necessary. The end lines of each claim shall be parallel to each other.

Sec. 2321. Proof of citizenship, under this chapter, may consist, in the case of an individual, of his own affidavit thereof; in the case of an association of persons unincorporated, of the affidavit of their authorized agent, made on his own knowledge, or upon information and belief; and in the case of a corporation organized under the laws of the United States, or of any State or Territory thereof, by the filing of a certified copy of their charter or certificate of incorporation.

Sec. 2322. The locators of all mining locations heretofore made or which shall hereafter be made, on any mineral vein, lode, or ledge, situated on the public domain, their heirs and assigns, where no ad-

verse claim exists on the tenth day of May, 1872, so long as they comply with the laws of the United States, and with State, Territorial and local regulations not in conflict with the laws of the United States governing their possessory title, shall have the exclusive right of possession and enjoyment of all the surface included within the lines of their locations, and of all veins, lodes, and ledges throughout their entire depth, the top or apex of which lies inside of such surface-lines extended downward vertically, although such veins, lodes, or ledges may so far depart from a perpendicular in their course downward as to extend outside the vertical side-lines of such surface locations. But their right of possession to such outside parts of such veins or ledges shall be confined to such portions thereof as lie between vertical planes drawn downward as above described, through the end-lines of their locations, so continued in their own direction that such planes will intersect such exterior parts of such veins or ledges. And nothing in this section shall authorize the locator or possessor of a vein or lode, which extends in its downward course beyond the vertical lines of his claim, to enter upon the surface of a claim owned or possessed by another.

Sec. 2323. Where a tunnel is run for the develop-

ment of a vein or lode, or for the discovery of mines, the owners of such tunnel shall have the right of possession of all veins or lodes within 3,000 feet from the face of such tunnel on the line thereof, not previously known to exist, discovered in such tunnel, to the same extent as if discovered from the surface; and locations on the line of such tunnel of veins or lodes not appearing on the surface, made by other parties after the commencement of the tunnel, and while the same is being prosecuted with reasonable diligence, shall be invalid; but failure to prosecute the work on the tunnel for six months shall be considered as an abandonment of the right to all undiscovered veins on the line of such tunnel.

Sec. 2324. The miners of each mining district may make regulations not in conflict with the laws of the United States, or with the laws of the State or Territory in which the district is situated, governing the location, manner of recording, amount of work necessary to hold possession of a mining-claim, subject to the following requirements: The location must be distinctly marked on the ground so that its boundaries can be readily traced. All records of mining-claims hereafter made shall contain the name or names of the locators, the date of the location, and such a description of the claim or claims located, by reference to some natural object

or permanent monument, as will identify the claim. On each claim located after the tenth day of May, 1872, and until a patent has been issued therefor, not less than \$100 worth of labor shall be performed or improvements made during each year. On all claims located prior to the tenth day of May, 1872, \$10 worth of labor shall be performed or improvements made by the tenth day of June, 1874, and each year thereafter, for each 100 feet in length along the vein until a patent has been issued therefor; but where such claims are held in common, such expenditure may be made upon any one claim; and upon a failure to comply with these conditions, the claim or mine upon which such failure occurred shall be open to relocation in the same manner as if no location of the same had ever been made, provided that the original locators, their heirs, assigns, or legal representatives, have not resumed work upon the claim after failure and before such location. Upon the failure of any one of several co-owners to contribute his proportion of the expenditures required hereby, the co-owners who have performed the labor or made the improvements may, at the expiration of the year, give such delinquent co-owner personal notice in writing or notice by publication in the newspaper published nearest the claim, for at least once a week for ninety days, and if

at the expiration of ninety days after such notice in writing or by publication such delinquent should fail or refuse to contribute his proportion of the expenditure required by this section, his interest in the claim shall become the property of his co-owners who have made the required expenditures.

Sec. 2325. A patent for any land claimed and located for valuable deposits may be obtained in the following manner: Any person, association, or corporation authorized to locate a claim under this chapter, having claimed and located a piece of land for such purposes, who has, or have, complied with the terms of this chapter, may file in the proper land-office an application for a patent, under oath, showing such compliance, together with a plat and field-notes of the claim or claims in common, made by or under the direction of the United States Surveyor-General, showing accurately the boundaries of the claim or claims, which shall be distinctly marked by monuments on the ground, and shall post a copy of such plat, together with a notice of such application for a patent, in a conspicuous place on the land embraced in such plat previous to the filing of the application for a patent, and shall file an affidavit of at least two persons that such notice has been duly posted, and shall file a copy of the notice in such land-office, and shall thereupon be

entitled to a patent for the land, in a manner following: The register of the land-office, upon the filing of such application, plat, field-notes, notices, and affidavits, shall publish a notice that such application has been made, for the period of sixty days, in a newspaper to be by him designated as published nearest to such claim; and he shall also post such notice in his office for the same period. The claimant at the time of filing this application, or at any time thereafter, within the sixty days of publication, shall file with the register a certificate of the United States Surveyor-General that \$500 worth of labor has been expended or improvements made upon the claim, by himself or grantors; that the plat is correct, with such further description by such reference to natural objects or permanent monuments as shall identify the claim, and furnish an accurate description, to be incorporated in the patent. At the expiration of the sixty days of publication, the claimant shall file his affidavit, showing that the plat and notice have been posted in a conspicuous place on the claim during such period of publication. If no adverse claim shall have been filed with the register and the receiver of the proper land-office at the expiration of the sixty days of publication, it shall be assumed that the applicant is entitled to a patent, upon the

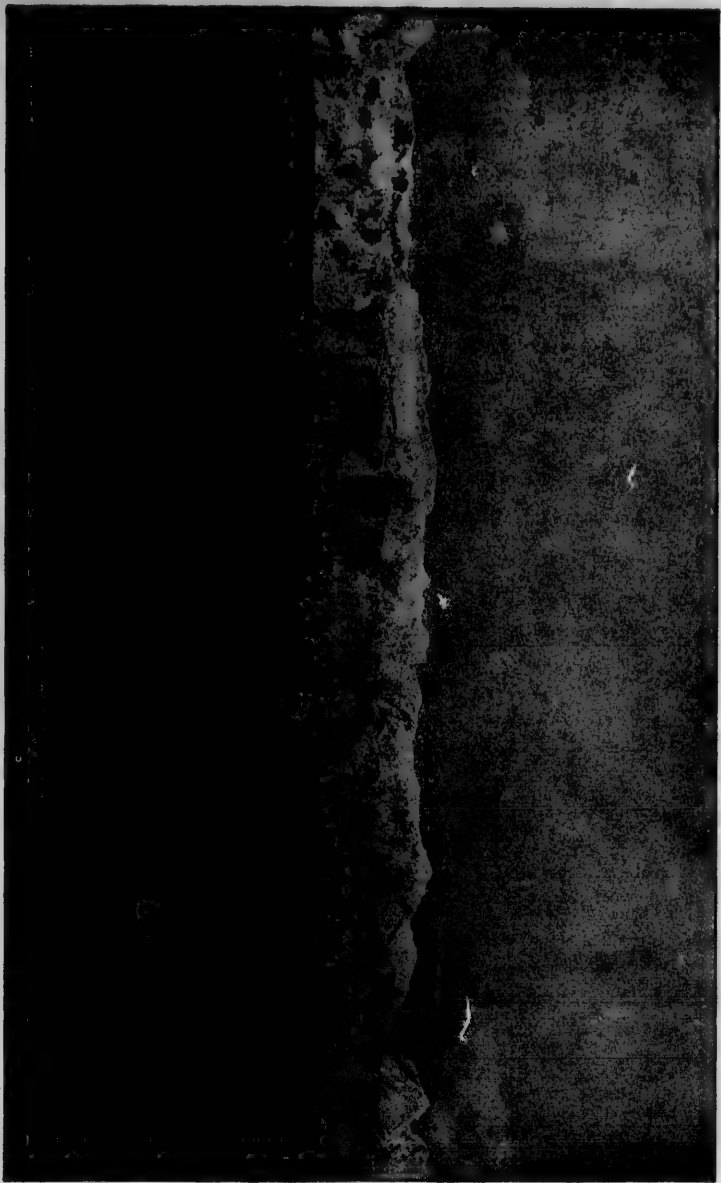
payment to the proper officer of \$5 per acre, and that no adverse claim exists; and thereafter no objection from third parties to the issuance of a patent shall be heard, except it be shown that the applicant has failed to comply with the terms of this chapter.

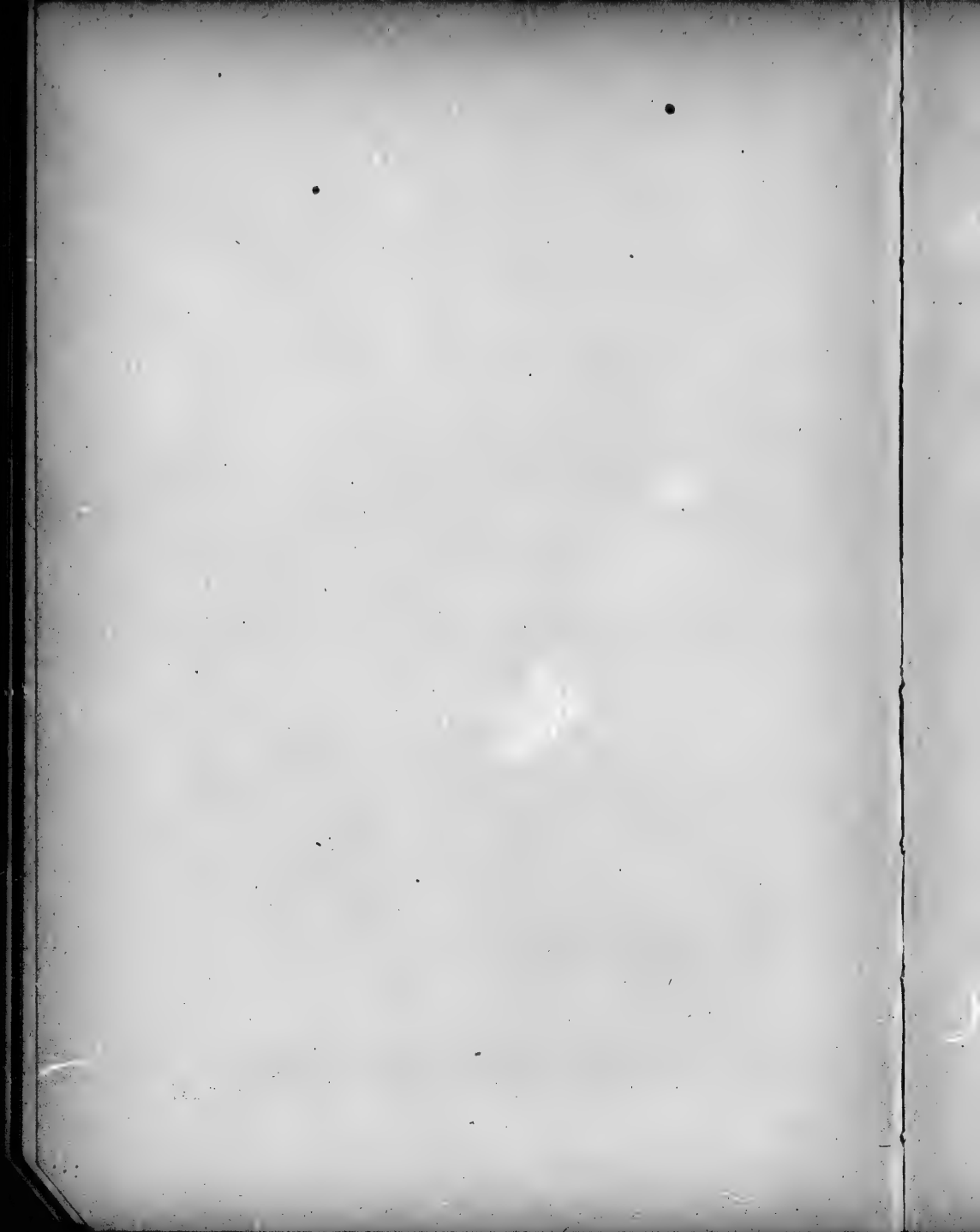
Sec. 2326. Where an adverse claim is filed during the period of publication, it shall be upon oath of the person or persons making the same, and shall show the nature, boundaries, and extent of such adverse claim, and all proceedings, except the publication of notice and making and filing of the affidavit thereof, shall be stayed until the controversy shall have been settled or decided by a court of competent jurisdiction, or the adverse claim waived. It shall be the duty of the adverse claimant, within thirty days after filing his claim, to commence proceedings in a court of competent jurisdiction, to determine the question of the right of possession, and prosecute the same with reasonable diligence to final judgment; and a failure so to do shall be a waiver of his adverse claim. After such judgment shall have been rendered, the party entitled to the possession of the claim, or any portion thereof, may, without giving further notice, file a certified copy of the judgment-roll with the register of the land-office, together with the certificate of the surveyor-general

that the requisite amount of labor has been expended or improvements made thereon, and the description required in other cases, and shall pay to the receiver \$5 per acre for his claim, together with the proper fees, whereupon the whole proceedings and the judgment-roll shall be certified by the register to the Commissioner of the General Land Office, and a patent shall issue thereon for the claim, or such portion thereof as the applicant shall appear, from the decision of the court, to rightly possess. If it appears from the decision of the court that several parties are entitled to separate and different portions of the claim, each party may pay for his portion of the claim with the proper fees, and file the certificate and description by the surveyor-general, whereupon the register shall certify the proceedings and judgment-roll to the Commissioner of the General Land Office, as in the preceding case, and patents shall issue to the several parties according to their respective rights. Nothing herein contained shall be construed to prevent the alienation of a title conveyed by a patent for a mining-claim to any person whatever.

Sec. 2327. The description of vein or lode claims, upon surveyed lands, shall designate the location of the claim with reference to the lines of the public surveys, but need not conform therewith; but where

MUIR GLACIER (MIDDLE PORTION).





a patent shall be issued for claims upon unsurveyed lands, the surveyor-general, in extending the surveys, shall adjust the same to the boundaries of such patented claim, according to the plat or description thereof, but so as in no case to interfere with or change the location of any such patented claim.

Sec. 2328. Applications for patents for mining-claims under former laws now pending may be prosecuted to a final decision in the General Land Office; but in such cases where adverse rights are not affected thereby, patents may issue in pursuance of the provisions of this chapter; and all patents for mining-claims upon veins or lodes heretofore issued shall convey all the rights and privileges conferred by this chapter where no adverse rights existed on the tenth day of May, 1872.

Sec. 2329. Claims usually called "placers," including all forms of deposit, excepting veins of quartz, or other rock in place, shall be subject to entry and patent, under like circumstances and conditions, and upon similar proceedings, as are provided for vein or lode claims; but where the lands have been previously surveyed by the United States, the entry in its exterior limits shall conform to the legal subdivisions of the public lands.

Sec. 2330. Legal subdivisions of forty acres may be subdivided into ten-acre tracts; and two or more

persons, or associations of persons, having contiguous claims of any size, although such claims may be less than ten acres each, may make joint entry thereof; but no location of a placer-claim, made after the ninth day of July, 1870, shall exceed 160 acres for any one person or association of persons, which location shall conform to the United States surveys; and nothing in this section contained shall defeat or impair any bona fide preëmption or homestead claim upon agricultural lands, or authorize the sale of the improvements of any bona fide settler to any purchaser.

Sec. 2331. Where placer-claims are upon surveyed lands, and conform to legal subdivisions, no further survey or plat shall be required, and all placer-mining claims located after the tenth day of May, 1872, shall conform as near as practicable with the United States system of public-land surveys, and the rectangular subdivisions of such surveys, and no such location shall include more than twenty acres for each individual claimant; but where placer-claims can not be conformed to legal subdivisions, survey and plat shall be made as on unsurveyed lands; and where by the segregation of mineral lands in any legal subdivision a quantity of agricultural land less than forty acres remains, such fractional portion of agricultural land

may be entered by any party qualified by law, for homestead or preëmption purposes.

Sec. 2332. Where such person or association, they and their grantors, have held and worked their claims for a period equal to the time prescribed by the statute of limitations for mining-claims of the State or Territory where the same may be situated, evidence of such possession and working of the claims for such period shall be sufficient to establish a right to a patent thereto under this chapter, in the absence of any adverse claim; but nothing in this chapter shall be deemed to impair any lien which may have attached in any way whatever to any mining-claim or property thereto attached prior to the issuance of a patent.

Sec. 2333. Where the same person, association, or corporation is in possession of a placer-claim, and also a vein or lode included within the boundaries thereof, application shall be made for a patent for the placer-claim, with the statement that it includes such vein or lode, and in such case a patent shall issue for the placer-claim, subject to the provisions of this chapter, including such vein or lode, upon the payment of \$5 per acre for such vein or lode-claim, and twenty-five feet of surface on each side thereof. The remainder of the placer-claim, or any placer-claim not embracing any vein

or lode-claim, shall be paid for at the rate of \$2.50 per acre, together with all costs of proceedings; and where a vein or lode, such as is described in Section 2320, is known to exist within the boundaries of a placer-claim, an application for a patent for such placer-claim which does not include an application for the vein or lode-claim shall be construed as a conclusive declaration that the claimant of the placer-claim has no right of possession of the vein or lode claim; but where the existence of a vein or lode in a placer-claim is not known, a patent for the placer-claim shall convey all valuable mineral and other deposits within the boundaries thereof.

Sec. 2334. The Surveyor-General of the United States may appoint in each land-district containing mineral lands as many competent surveyors as shall apply for appointment to survey mining-claims. The expenses of the survey of vein or lode claims, and the survey and subdivision of placer-claims into smaller quantities than 160 acres, together with the cost of publications of notices, shall be paid by the applicants, and they shall be at liberty to obtain the same at the most reasonable rates, and they shall also be at liberty to employ any United States deputy surveyor to make the survey. The Commissioner of the General Land Office shall also have power to establish the maximum charges

for surveys and publication of notices under this chapter; and, in case of excessive charges for publication, he may designate any newspaper published in a land-district where mines are situated for the publication of mining-notices in such district, and fix the rates to be charged by such paper; and, to the end that the Commissioner may be fully informed on the subject, each applicant shall file with the register a sworn statement of all charges and fees paid by such applicant for publication and surveys, together with all fees and money paid the register and the receiver of the land-office, which statement shall be transmitted, with the other papers in the case, to the Commissioner of the General Land Office.

Sec. 2335. All affidavits required to be made under this chapter may be verified before any officer authorized to administer oaths within the land-district where the claims may be situated, and all testimony and proofs may be taken before any such officer, and, when duly certified by the officer taking the same, shall have the same force and effect as if taken before the register and receiver of the land-office. In cases of contest as to the mineral or agricultural character of land, the testimony and proofs may be taken as herein provided on personal notice of at least ten days to the opposing party; or if

such party can not be found, then by publication of at least once a week for thirty days in a newspaper, to be designated by the register of the land-office as published nearest to the location of such land; and the register shall require proof that such notice has been given.

Sec. 2336. Where two or more veins intersect or cross each other, priority of title shall govern, and such prior location shall be entitled to all ore or mineral contained within the space of intersection; but the subsequent location shall have the right of way through the space of intersection for the purposes of the convenient working of the mine. And where two or more veins unite, the oldest or prior location shall take the vein below the point of union, including all the space of intersection.

Sec. 2337. Where non-mineral land not contiguous to the vein or lode is used or occupied by the proprietor of such vein or lode for mining or milling purposes, such non-adjacent surface-ground may be embraced and included in an application for a patent for such vein or lode, and the same may be patented therewith, subject to the same preliminary requirements as to survey and notice as are applicable to veins or lodes; but no location hereafter made of such non-adjacent land shall exceed five acres, and payment for the same must be made

at the same rate as fixed by this chapter for the superficies of the lode. The owner of a quartz-mill or reduction works, not owning a mine in connection therewith, may also receive a patent for his mill-site, as provided in this section.

Sec. 2338. As a condition of sale, in the absence of necessary legislation by Congress, the local legislature of any State or Territory may provide rules for working mines, involving easements, drainage, and other necessary means to their complete development; and those conditions shall be fully expressed in the patent.

Sec. 2339. Whenever, by priority of possession, rights to the use of water for mining, agricultural, manufacturing, or other purposes, have vested and accrued, and the same are recognized and acknowledged by the local customs, laws, and the decisions of courts, the possessors and owners of such vested rights shall be maintained and protected in the same; and the right of way for the construction of ditches and canals for the purposes herein specified is acknowledged and confirmed; but whenever any person, in the construction of any ditch or canal, injures or damages the possession of any settler on the public domain, the party committing such injury or damage shall be liable to the party injured for such injury or damage.

Sec. 2340. All patents granted, or preëmption or homesteads allowed, shall be subject to any vested and accrued water-rights, or rights to ditches and reservoirs used in connection with such water-rights, as may have been acquired under or recognized by the preceding section.

Sec. 2341. Wherever, upon the lands heretofore designated as mineral lands, which have been excluded from survey and sale, there have been homesteads made by citizens of the United States, or persons who have declared their intention to become citizens, which homesteads have been made, improved, and used for agricultural purposes, and upon which there have been no valuable mines of gold, silver, cinnabar, or copper discovered, and which are properly agricultural lands, the settlers or owners of such homesteads shall have a right of preëmption thereto, and shall be entitled to purchase the same at the price of \$1.25 per acre, and in quantity not to exceed 160 acres; or they may avail themselves of the provisions of Chapter V. of this title, relating to "Homesteads."

Sec. 2342. Upon the survey of the lands described in the preceding section, the Secretary of the Interior may designate and set apart such portions of the same as are clearly agricultural lands, which lands shall thereafter be subject to preëmp-

tion and sale as other public lands, and be subject to all the laws and regulations applicable to the same.

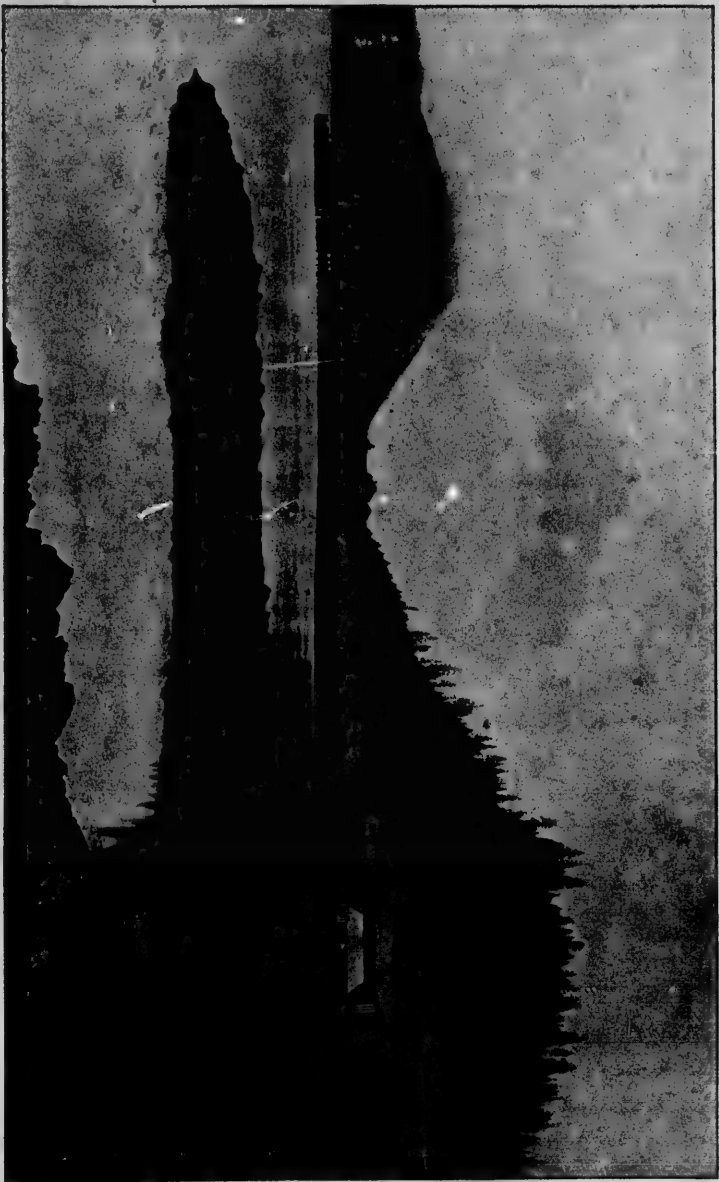
Sec. 2343. The President is authorized to establish additional land districts, and to appoint the necessary officers under existing laws, wherever he may deem the same necessary for the public convenience in executing the provisions of this chapter.

Sec. 2344. Nothing contained in this chapter shall be construed to impair, in any way, rights or interests in mining property acquired under existing laws; nor to affect the provisions of the act entitled "An act granting to A. Sutro the right of way and other privileges to aid in the construction of a draining and exploring tunnel to the Comstock lode, in this State of Nevada," approved July 25, 1866.

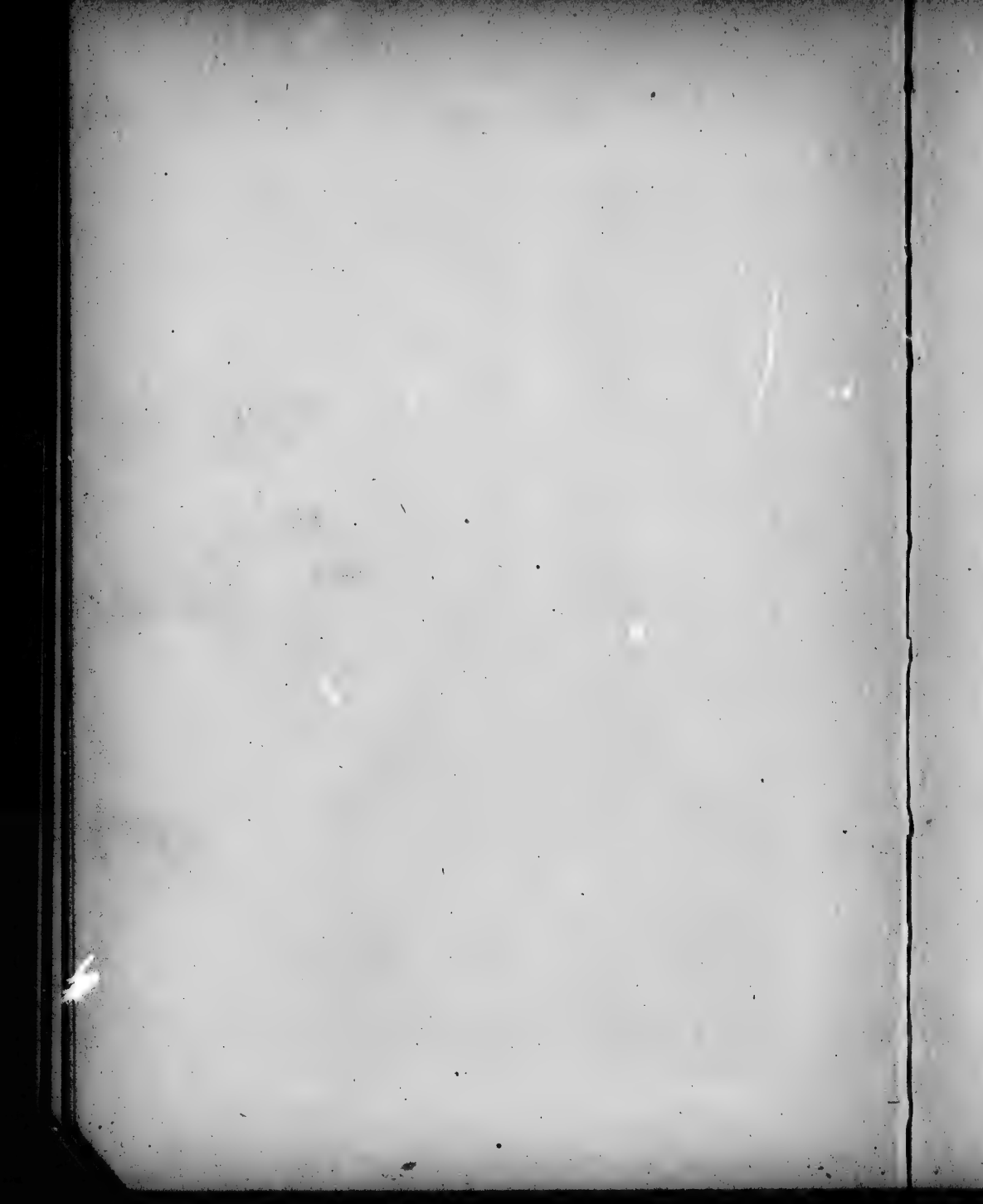
Sec. 2345. The provisions of the preceding sections of this chapter shall not apply to the mineral lands situated in the States of Michigan, Wisconsin, and Minnesota, which are declared free and open to exploration and purchase, according to legal subdivisions, in like manner as before the tenth day of May, 1872. And any bona fide entries of such lands within the States named since the tenth of May, 1872, may be patented without reference to any of the foregoing provisions of this chapter. Such

lands shall be offered for public sale in the same manner, at the same minimum price, and under the same rights of preëmption as other public lands.

Sec. 2346. No act passed at the first session of the Thirty-eighth Congress, granting lands to States or corporations to aid in the construction of roads or for other purposes, or to extend the time of grants made prior to the thirtieth day of January, 1865, shall be so construed as to embrace mineral lands, which in all cases are reserved exclusively to the United States, unless otherwise especially provided in the act or acts making the grant.



VIEW OF WRANGELL (FROM CHIEF'S HOUSE).



CLIMATE, ACRICULTURE AND HEALTH.

The Weather Bureau has made public a statement in regard to the climate of Alaska, which says: "The climates of the coast and the interior of Alaska are unlike in many respects, and the differences are intensified in this as perhaps in few other countries by exceptional physical conditions. The fringe of islands that separates the mainland from the Pacific Ocean from Dixon Sound north, and also a strip of the mainland for possibly twenty miles back from the sea, following the sweep of the coast as it curves to the northwestward to the western extremity of Alaska, form a distinct climatic division which may be termed temperate Alaska. The temperature rarely falls to zero; winter does not set in until Dec. 1, and by the last of May the snow has disappeared except on the mountains.

"The mean winter temperature of Sitka is 32.5, but little less than that of Washington, D. C. The rainfall of temperate Alaska is notorious the world over, not only as regards the quantity, but also as to the manner of its falling, viz.: in long and incessant rains and drizzles. Cloud and fog naturally abound, there being on an average but sixty-six clear days in the year.

"North of the Aleutian Islands the coast climate becomes more rigorous in winter, but in summer the difference is much less marked.

"The climate of the interior is one of extreme rigor in winter, with a brief but relatively hot summer, especially when the sky is free from cloud.

"In the Klondike region in midwinter the sun rises from 9:30 to 10 a. m., and sets from 2 to 3 p. m., the total length of daylight being about four hours. Remembering that the sun rises but a few degrees above the horizon and that it is wholly obscured on a great many days, the character of the winter months may easily be imagined.

"We are indebted to the United States coast and geodetic survey for a series of six months' observations on the Yukon, not far from the site of the present gold discoveries. The observations were made with standard instruments, and are wholly reliable. The mean temperatures of the months October, 1889, to April, 1890, both inclusive, are as follows: October, 33 degrees; November, 8 degrees; December, 11 degrees, below zero; January, 17 below zero; February, 15 below zero; March, 6 above; April, 20 above. The daily mean temperature fell and remained below the freezing point (32 degrees) from Nov. 4, 1889, to April 21, 1890, thus giving 168 days as the length of the closed season of 1889-

'90, assuming that outdoor operations are controlled by temperature only. The lowest temperatures registered during the winter were: Thirty-two degrees below zero in November, 47 below in December, 59 below in January, 55 below in February, 45 below in March, and 26 below in April.

"The greatest continuous cold occurred in February, 1890, when the daily mean for five consecutive days was 47 degrees below zero.

"Greater cold than that here noted has been experienced in the United States for a very short time, but never has it continued so very cold for so long a time as in the interior of Alaska. The winter sets in as early as September, when snow-storms may be expected in the mountains and passes. Headway during one of those storms is impossible, and the traveler who is overtaken by one of them is indeed fortunate if he escapes with his life. Snow-storms of great severity may occur in any month from September to May, inclusive.

"The changes of temperature from winter to summer are rapid, owing to the great increase in the length of the day. In May the sun rises at about 3 a. m. and sets about 9 p. m. In June it rises about half past 1 in the morning, and sets at about half past 10, giving about twenty hours of daylight and diffuse twilight the remainder of the time.

"The mean summer temperature in the interior doubtless ranges between 60 and 70 degrees, according to elevation, being highest in the middle and lower Yukon valleys."

Accurate data of the temperature in the Klondike district were kept at Fort Constantine last year. The temperature first touched zero Nov. 10, and the zero weather recorded in the spring was on April 29.

Between Dec. 19 and Feb. 6 it never rose above zero. The lowest actual point, 65 below, occurred on Jan. 27, and on twenty-four days during the winter the temperature was below 50.

On March 12 it first rose above the freezing point, but no continuous mild weather occurred until May 4, after which date the temperature during the balance of the month frequently rose above 60 degrees.

The Yukon River froze up on Oct. 28 and broke up on May 17.

The long and severe winter and the frozen moss-covered ground are serious obstacles to agriculture and stock raising. The former can change but little with coming seasons, but the latter, by gradually burning off areas, can be overcome to some extent. On such burned tracts hardy vegetables have been and may be raised, and the area open to such use

is considerable. Potatoes do well and barley will mature a fair crop.

Live stock may be kept by providing an abundance of shelter and feed and housing them during the winter. In summer an abundance of the finest grass pasture can be had, and great quantities of natural hay can be cut in various places.

Diseases.—In spite of all that is heard in the newspapers regarding the healthfulness of the climate of Alaska and the upper Yukon, the Census Report of Alaska offers its incontestable statistics to the effect that the country is not more salubrious, nor its people more healthy than could be expected in a region of violent climate, where the most ordinary laws of health remain almost totally ignored. From the Government Report we quote the following:

“Those diseases which are most fatal to life in one section of Alaska seem to be applicable to all others. In the first place, the native children receive little or no care, and for the first few years of their lives are more often naked than clothed, at all seasons of the year. Consumption is the simple and comprehensive title for the disease which destroys the greater number of the people of Alaska. Aluet, Indian and Eskimo suffer from it alike; and all alike exhibit the same stolid indifference to its slow and

fatal progress, make no attempt to ward it off, take no special precautions even when the disease reaches its climax."

Next to consumption the scrofulous diseases, in the forms of ulcers, eat into the vitals and destroy them until the natives have the appearance of lepers to unaccustomed eyes. As a consequence of their neglect and the exigencies of the native life, forty or fifty years is counted among them as comparatively great age, and none are without the ophthalmic diseases necessarily attendant on existence in smoky barabaras. Against snow-blindness the Eskimo people use peculiar goggles, but by far the greater evil, the smoke poisoning of the ophthalmic nerve is neither overcome nor prevented by any of them. All traders carry medicine chests and do what they can to relieve suffering, but it requires a great deal of medicine to make an impression on the native constitution, doses being about four times what would suffice an Englishman or American.

OUTFITS, SUPPLIES, ETC.

Houses.—Almost every item has been taken into consideration by the prospectors starting out to face an Alaskan winter except the item of shelter when they shall have put their boats in winter dock. The result will be that many hundreds will find themselves in the bleak region with plenty of money and victuals, but insufficient protection from the cold weather. From accounts that have come from Alaska and British Columbia, there are more men there skilled in digging and bookkeeping than in carpentry, and more picks and shovels than axes and planes. With the arrival of parties that have lately gone to the headwaters of the Yukon, there will necessarily be an immense demand for houses, for without them the miners will freeze. This matter is beginning to receive attention in San Francisco and Seattle, and preparations are now under way to provide gold seekers with houses.

Negotiations have been conducted between parties in San Francisco and this city for the shipment of entire houses to the gold regions. The houses will be constructed in sections, so that they may be carried easily in boats up the Yukon or packed on sleds and carried through the rough country in baggage trains. A New York

firm which makes a specialty of such houses has received orders for as many as can be sent there.

No tents are used in winter, as they become coated with ice from the breath of the sleepers and are also apt to take fire.

Clothing for Men.—A year's supply of winter clothing ought to be taken, especial pains being taken to supply plenty of warm, durable underwear. Old-timers in the country wear in winter a coat or blouse of dressed deer skin, with the hair on, coming down to the knees and held by a belt round the waist. It has a hood which may be thrown back on the shoulders when not needed. This shirt is trimmed with white deerskin or wolfskin, while those worn in extreme weather are often lined with fur. Next in importance to them are the torbassâ or Eskimo boots. These are of reindeer skin, taken from the legs, where the hair is short, smooth and stiff. These are sewed together to make the tops of the boots which come up nearly to the knee, where they are tied. The sole is of sealskin, turned over at heel and toe and gathered up so as to protect those parts and then brought up on each side. They are made much larger than the foot and are worn with a pad of dry grass which, folded to fit the sole, thickens the boot and forms an additional protection to the foot. A pair of strings tied about the ankle

from either side complete a covering admirably adapted to the necessities of winter travel. If the newcomer can get such garments as these he will be well provided against winter rigors.

Women going to the mines are advised to take two pairs of extra heavy all-wool blankets, one small pillow, one fur robe, one warm shawl, one fur coat, easy fitting; three warm woollen dresses, with comfortable bodices and skirts knee length, flannel-lined preferable; three pairs of knickers or bloomers to match the dresses, three suits of heavy all-wool underwear, three warm flannel night dresses, four pairs of knitted woollen stockings, one pair of rubber boots, three gingham aprons that reach from neck to knees, small roll of flannel for insoles, wrapping the feet and bandages; a sewing kit, such toilet articles as are absolutely necessary, including some skin unguent to protect the face from the icy cold, two light blouses or shirt waists for summer wear, one oilskin blanket to wrap her effects in, to be secured at Juneau or St. Michael; one fur cape, two pairs of fur gloves, two pairs of surseal moccasins, two pairs of muclucs—wet weather moccasins.

She wears what she pleases en route to Juneau or St. Michael, and when she makes her start for the diggings she lays aside every civilized traveling garb, including shoes and stays, until she comes out.

Instead of carrying the fur robe, fur coat and rubber boots along, she can get them on entering Alaska, but the experienced ones say, take them along. Leggings and shoes are not so safe nor desirable as the moccasins. A trunk is not the thing to transport baggage in. It is much better in a pack, with the oilskin cover well tied on. The things to add that are useful, but not absolutely necessary, are chocolate, coffee and the smaller light luxuries.

Beds are made on a platform raised a few feet from the floor, and about seven feet wide, and often consist of a reindeer skin with the hair on and one end sewn up so as to make a sort of bag to put the feet in, a pillow of wild goose feathers, and a pair of blankets. Sheets, which have been unknown heretofore, may become essential, but such a conventionality as a counterpane would better be left behind.

Provisions.—There was a report that Canadian mounted police would guard the passes during the latter part of the summer of 1897 and refuse admission to anyone who did not bring a year's provisions with him. This has been estimated as weighing 1,800 pounds. Whether this is true or not, it is certain that no one should go into the Yukon country without taking a large supply of food, and taking it from his starting point. Whatever is the most

condensed and nutritious is the cheapest, and this should be collected with great care. There is well-grounded fear that famine may overtake all the camps there before the opening of navigation in the spring. Newspapers on August 2nd reported agents of the Alaska Commercial Company as saying:

"We shall refuse to take passengers at all in our next steamer. We could sell every berth at the price we have been asking—\$250, as against \$120 last spring—but we shall not sell one. We shall fill up with provisions, and I have no doubt the Pacific Coast Company will do the same. We are afraid. Those who are mad to get to the diggings will probably be able to get transportation by chartering tramp steamers, and there is a serious risk that there will not be food enough for them at Juneau or on the Yukon. After the season closes it will be next to impossible to get supplies into the Yukon country, and a large proportion of the gold seekers may starve to death. That would be an ominous beginning for the new camp. Alaska is not like California or Australia or South Africa. It produces nothing. When the supplies from outside are exhausted, famine must follow—to what degree no one can tell."

It was further understood at this date that there are 2,000 tons of food at St. Michael, and the Alaska

Company has three large and three small steamers to carry it up river. It is hard to ascertain how much there is at Juneau; it is vaguely stated that there are 5,000 tons. At a pinch steamers might work their way for several months to come through the ice to that port from Seattle, which is only three days distant. But it may be nip and tuck if there is any rush of gold seekers from the East.

Alaskan Mails.—Between Seattle and Sitka the mail steamers ply regularly. On the City of Topeka there has been established a regular sea post-office service. W. R. Curtis is the clerk in charge. Between Sitka and Juneau there is a closed pouch steamboat service. Seattle makes up closed pouches for Douglas, Fort Wrangel, Juneau, Killisnoo, Ketchikan, Mary Island, Sitka, and Metlakahtla. Connecting at Sitka is other sea service between that point and Unalaska, 1,400 miles to the west. This service consists of one trip a month between Sitka and Unalaska from April to October and leaves Sitka immediately upon arrival of the mails from Seattle. Captain J. E. Hanson is acting clerk. From Unalaska the mails are dispatched to St. Michael and thence to points on the Yukon.

The Postoffice department has perfected not only a summer but a winter star route service between Juneau and Circle City. The route is overland and

by boats and rafts over the lakes and down the Yukon, and is 900 miles long. A Chicago man named Beddoe carries the summer mail, making five trips between June and November, and is paid \$500 a trip. Two Juneau men, Frank Corwin and Albert Hayes, operate the winter service and draw for each round trip \$1,700 in gold. About 1,200 letters are carried on each trip. The cost of forwarding letters from Circle City to Dawson City is one dollar for each letter and two for each paper, the mails being sent over once a month. The Chilkoot Pass is crossed with the mail by means of Indian carriers. On the previous trips the carriers, after finishing the pass, built their boats, but they now have their own to pass the lakes and the Lewes River.

In the winter transportation is carried on by means of dog-sleds, and it is hoped that under the present contracts there will be no stoppage, no matter how low the temperature may go. The contractor has reported that he was sending a boat, in sections, by way of St. Michael, up the Yukon River, to be used on the waterway of the route, and it is thought much time will be saved by this, as formerly it was necessary for the carriers to stop and build boats or rafts to pass the lakes.

Contracts have been made with two steamboat companies for two trips from Seattle to St. Michael.

When the steamers reach St. Michael, the mail will be transferred to the flat-bottomed boats running up the Yukon as far as Circle City. It is believed the boats now run further up.

The contracts for the overland route call for only first-class matter, whereas the steamers in summer carry everything, up to five tons, each trip.

Sledges and Dogs.—The sleds are heavy and shod with bone sawed from the upper edge of the jaw of the bowhead whale. The rest of the sled is of spruce and will carry from six to eight hundred pounds. The sleds used in the interior are lighter and differently constructed. They consist of a narrow box four feet long, the front half being covered or boxed in, mounted on a floor eight feet long resting on runners. In this box the passenger sits, wrapped in rabbit skins so that he can hardly move, his head and shoulders only projecting. In front and behind and on top of the box is placed all the luggage, covered with canvas and securely lashed, to withstand all the jolting and possible upsets, and his snow shoes within easy reach.

An important item is the dog-whip, terrible to the dog if used by a skillful hand and terrible to the user if he be a novice; for he is sure to half strangle himself or to hurt his own face with the business end of the lash. "The whip I measured had a handle

nine inches long and lash thirty feet, and weighed four pounds. The lash was of folded and plaited seal hide, and for five feet from the handle measured five inches round, then for fourteen feet it gradually tapered off, ending in a single thong half an inch thick and eleven feet long. Wonderful the dexterity with which a driver can pick out a dog and almost a spot on a dog with this lash! The lash must be trailing at full length behind, when a jerk and turn of the wrist causes it to fly forward, the thick part first, and the tapering end continuing the motion till it is at full length in front, and the lash making the fur fly from the victim. But often it is made to crack over the heads of the dogs as a warning.

"The eleven dogs are harnessed to the front of the sled, each by a separate thong of seal hide, all of different lengths, fastened to a light canvas harness. The nearest dog is about fifteen feet from the sled, and the leader, with bells on her, about fifty feet, the thongs thus increasing in length by about three feet. When the going is good the dogs spread out like the fingers of a hand, but when the snow is deep they fall into each other's tracks in almost single file. As they continually cross and recross each other, the thongs get gradually plaited almost up to the rearmost dog, when a halt is called,

the dogs are made to lie down, and the driver carefully disentangles them, taking care that no dog gets away meanwhile. They are guided by the voice, using 'husky,' that is, Eskimo words: 'Owk,' go to the right; 'arrah,' to the left, and 'holt,' straight on. But often one of the men must run ahead on snowshoes for the dogs to follow him.

"The dogs are of all colors, somewhat the height of the Newfoundland, but with shorter legs. The usual number is from five to seven, according to the load."

List of prices that have been current in Dawson City during 1897:

Flour, per 100 lbs.....	\$12.00 to \$120.00	
Moose ham, per lb.....	1.00 to	2.00
Caribou meat, lb.....	.65	
Beans, per lb.....	.10	
Rice, per lb.....	.25 to	.75
Sugar, per lb.....	.25	
Bacon, per lb.....	.40 to	.80
Butter, per roll.....	1.50 to	2.50
Eggs, per doz.....	1.50 to	3.00
Better eggs, doz.....	2.00	
Salmon, each.....	1.00 to	1.50
Potatoes, per lb.....	.25	
Turnips, per lb.....	.15	
Tea, per lb.....	1.00 to	3.00
Coffee, per lb.....	.50 to	2.25
Dried fruits, per lb.....	.35	

Canned fruits	\$.50 to	\$ 2.25
Lemons, each	.20 to	.25
Oranges, each	.50	
Tobacco, per lb.	1.50 to	2.00
Liquors, per drink	.50	
Shovels	2.50 to	18.00
Picks	5.00 to	7.00
Coal oil, per gal.	1.00 to	2.50
Overalls	1.50	
Underwear, per suit	5.00 to	7.50
Shoes	5.00 to	8.00
Rubber boots	15.00 to	18.00

Based on supply and demand the above quoted prices may vary several hundred per cent. on some articles at any time.

Fare to Seattle by way of Northern Pacific, \$81.50.

Fee for Pullman sleeper, \$20.50.

Fee for tourist sleeper, run only west of St. Paul, \$5.

Meals served in dining car for entire trip, \$16.

Meals are served at stations along the route a la carte.

Distance from New York to Seattle, 3,290 miles.

Days required to make the journey, about six.

Fare for steamer from Seattle to Juneau, including cabin and meals, \$35.

Days, Seattle to Juneau, about five.

Number of miles from Seattle to Juneau, 725.

Cost of living in Juneau, about \$3 per day.

Distance on Lynn Canal to Healy's Store, steamboat, seventy-five miles.

Number of days, New York to Healy's Store, twelve.

Cost of complete outfit for overland journey, about \$150.

Cost of provisions for one year, about \$200.

Cost of dogs, sled and outfit, about \$150.

Steamer leaves Seattle once a week.

Best time to start is early in the Spring.

Total cost of trip, New York to Klondike, about \$667.

Number of days required for journey, New York to Klondike, thirty-six to forty.

Total distance, New York to the mines at Klondike, 4,650 miles.

MEDICAL ADVICE FOR GOLD HUNTERS.

By DR. A. P. O'BRIEN.

To give absolutely safe medical advice on the subject of who should and who should not go to the Klondike is a hard task. There is much exaggeration current about the risks involved in the journey.

The common talk about the fatal effects of arctic cold may be discounted largely. Man—especially man reared in the temperate zone—has the power of assimilating himself with climatic changes more than any other mammal. Changes from hot to cold, from moist to dry, from high altitudes to sea coast and the reverse, are found beneficial in individual cases in the highest degree.

For many constitutions the bracing effect of a trip to Northern latitudes is positively beneficial. Snow and ice are not in themselves by any means injurious to the physical health of the average native of the temperate zone. They may be disagreeable, but they are not unhealthful, unless the soil of the district where they occur is of a nature to retain dampness. Clays are bad in this respect; gravelly soils are safe.

Scientific records have well established that the average duration of human life is greater in proportion as the residence is advanced from the equator toward the poles. There are exceptions, of course, but only such as prove the general rule. There is more risk of disease by far in a voyage to India or Panama than in one to Behring Straits.

Climate, however, is not the only thing to be considered when there is question, in a medical sense, of the risks of a distant and laborious expedition, undertaken by a multitude of persons widely differing, as all multitudes must, in the capacity of individuals for standing hardships and privations.

To the weak, or those disposed to special ailments, conditions which are only invigorating to the man in average health are often absolutely fatal. Weak hearts and weak lungs cannot face Northern blasts or temperatures below zero. Rheumatism and its kindred affections are equally ill-fitted for such tests. Nor are such persons, whether young or old, as have been long accustomed to purely sedentary occupations or to lives of ease and luxury, physically fitted for the hardships of the Klondike. In the former the vital and resistive powers have never been developed; in the latter they have been sapped. Weak eyes would be severely tested by the glare of a snow-covered land, and blindness is but one

of the dangers to be feared by arctic explorers.

In brief, I would say that persons subject to troubles of the heart, throat, or lungs should stay away from the Klondike. Physical exhaustion, colds, scurvy, rheumatism, and snow blindness are the chief dangers to be apprehended on the trip from a medical standpoint. For the healthy, in other respects than those mentioned, there is no more danger to be dreaded than in any ordinary change of residence. Alaska is not more unhealthful in itself than Illinois, Norway, or the northern parts of Scotland. Only those that are able to bear hardships should face them, but as far as hygienic conditions go there need be no special apprehension on the score of Alaska. In conclusion, I would say to those of weak lungs and weak hearts, and sedentary people generally, stay at home. The others may balance their chances without need of doctors' advice.

I would advise all persons who contemplate going to the Klondike region to include in their outfit a medicine chest composed of the following drugs, the cost of which should be within \$10:

Quinine pills	50
Compound cathartic pills	50
Acetanilid tablets	3 dozen
Chlorate potash	1 box

Mustard plasters	6
Belladonna plasters	6
Carbolic salve	4 ounces
Chloroform liniment	8 ounces
Witch hazel	1 pint
Essence ginger	4 ounces
Paregoric	4 ounces
Laudanum	1 ounce
Borax	4 ounces
Tincture iodine	1 ounce
Spirits nitre	2 ounces
Tincture iron	1 ounce
Cough mixture	8 ounces
Toothache drops	1 bottle
Vaseline	1 bottle
Iodoform	2 drams
Lint	2 yards
Assorted bandages	$\frac{1}{2}$ dozen
Rubber adhesive plasters	2 feet
Absorbent cotton	4 ounces

Monsell's salts for hemorrhages—in quantities in accordance with the person's liability to attacks of the trouble.

LOCATION, AREA, AND POPULATION.

The Territory of Alaska, lying in the extreme northwestern corner of the North American Continent, on the Bering Sea and North Pacific, comprises an area of about 577,390 statute square miles, with a seacoast of 26,000 miles, or nearly two and one-half times the seacoast of the balance of the United States. The Territory was acquired by purchase by the United States from Russia, and the boundaries, as laid down in the treaty of cession of March 30, 1867, are: Commencing from the southernmost point of the island called Prince of Wales Island, which point lies in the parallel of 54 degrees 40 minutes north latitude, and between the 131st and the 133d degree of west longitude (meridian of Greenwich), the said line shall ascend to the north along the channel called Portland Channel as far as the point of the continent where it strikes the 56th degree of north latitude; from this last-mentioned point, the line of demarcation shall follow the summit of the mountains situated parallel to the coast as far as the point of intersection of the 141st degree of west longitude (of the same meridian); and finally, from the said point of intersection, the

said meridian line of the 141st degree, in its prolongation as far as the Frozen Ocean.

With reference to the line of demarcation it is understood—

1st. That the island called Prince of Wales Island shall belong wholly to Russia (now, by this cession, to the United States).

2d. That whenever the summit of the mountains which extend in a direction parallel to the coast from the 56th degree of north latitude to the point of intersection of the 141st degree of west longitude shall prove to be at the distance of more than ten marine leagues from the ocean, the limit between the British possessions and the line of coast which is to belong to Russia as above mentioned (that is to say, the limit to the possessions ceded by this convention) shall be formed by a line parallel to the winding of the coast, and which shall never exceed the distance of ten marine leagues therefrom.

The western limits, within which the territories and dominion conveyed are contained, passes through a point in Bering Straits on the parallel of 65 degrees 30 minutes north latitude, at its intersection by the meridian which passes midway between the islands of Krusenstern, or

Ignalook, and the island of Ratmanoff, or Noonarbook, and proceeds due north, without limitation, into the same Frozen Ocean. The same western limit, beginning at the same initial point, proceeds thence in a course nearly southwest through Bering's Straits and Bering's Sea, so as to pass midway between the northwest point of the Island of St. Lawrence and the southeast point of Cape Choukotski, to the meridian of 172 west longitude; thence, from the intersection of that meridian, in a southwesterly direction, so as to pass midway between the island of Atton and the Copper Island of the Kormandorski couplet or group in the North Pacific Ocean, to the meridian of 193 degrees west longitude, so as to include in the territory conveyed the whole of the Aleutian islands east of that meridian.

The treaty ceding to the United States the territory of Russian America, as it was then called, was concluded March 30, 1867. The sum of \$7,000,000 was originally agreed upon; but when it was understood that there was a fur company and also an ice company enjoying monopolies under the existing government, it was thought best that these should be extinguished; and the United States added \$200,000

to the purchase money, in consideration of which the Russian Government formally declared the cession of the territory to be free from all incumbrances.

Although there is no record of official correspondence on the matter, the eastern boundary line appears to have been the subject of informal consultation between the United States and Great Britain soon after the territory was annexed. In his annual message to Congress, December 2, 1872, President Grant recommended the appointment of a joint commission to determine the line; but no action upon the matter was taken by Congress. On May 17, 1886, President Cleveland transmitted to Congress copies of correspondence on the question between Secretary Bayard and Minister Phelps, and recommended the appropriation of \$100,000 for making a preliminary survey of the frontier territory. During the winter of 1887-88 informal conferences were held in Washington between Prof. W. H. Dall, of the United States Geological Survey, and Dr. George M. Dawson, both authorities on the Territory of Alaska, but the conferences led to no result. On August 20, 1895, Lord Gough inquired of Secretary Olney if a joint surveyor could not be appointed to act with

Mr. William Ogilvie, who was then about to survey the intersection of the one hundred and forty-first meridian and the Yukon River. The Acting Secretary of State asked if the proposed survey could not be delayed until Congress had had an opportunity to consider the question. This suggestion was transmitted to the Canadian government, which answered that the season was so far advanced that it would not be possible to communicate with Mr. Ogilvie before the next summer, when a considerable portion of the one hundred and forty-first meridian would already be marked on the ground. An extract from a letter by Secretary Olney, dated March 11, 1896, was as follows:

"So far as the recent and existing surveys on either side have progressed, they exhibit a close coincidence of results. At one point, as I am informed, the difference between Mr. Ogilvie's location and that made by the United States Coast and Geodetic Survey is only about 6 feet 7 inches. In another point the difference is in the neighborhood of 500 or 600 feet, and at other points even closer coincidence than this latter is expected when the comparison of calculations shall have been worked out."

Mr. Olney proposed that the two Governments

should agree upon certain points of the one hundred and forty-first meridian at the intersection of the principal streams, locating the same at points midway between the determinations of the Coast and Geodetic Survey and of Mr. Ogilvie, and providing for the junction of the points so located by convenient joint surveys, as occasion should require, until the entire line should be established. This would supply a permanent line which for international purposes would be coincident with the one hundred and forty-fifth meridian, stipulated under existing treaties, and would require no further immediate arrangement than the dispatch of a joint surveying party to set up monuments at the points defined, with perhaps the survey of a traverse line connecting the monuments on the Yukon and Forty Mile Creek, and farther south, if necessary.

The Canadian Government agreed to this proposition, and the convention is now pending before the Senate of the United States.

POPULATION.

No definite idea of the population was obtained until the census of 1890. In 1868, in a report by Maj. Gen. H. W. Halleck, the number given was 82,400. In the same year Rev. Vincent Collyer, in his report to the Commissioner of Indian Affairs, added 11,900 Thlinket Indians to the number given by General Halleck, making 94,300, while Ivan Petroff, Special Agent for the Tenth Census (1880), states the population as 33,426. The census of 1890, which is the first detailed statement, fixes the number at 32,052, which is made up of 4,298 white, 23,531 Indians, 2,288 Mongolians, and 1,935 mixed blood.

INDIAN TRIBES OF ALASKA.

For some years after the cession of Alaska to the United States, there was trouble among the Indian tribes, and a man-of-war was stationed in Sitka harbor. There has been no recent disturbance. The natives of Alaska, according to Mr. Petroff, are divided into four principal families: The Eskimo or Innuut, the Aleut (Oonagan), the Thlinket, and the Athabaskan

(or Tinneh). There are numerous subdivisions. The Eskimos occupy almost the whole coast line of Alaska west of the one hundred and forty-fifth meridian. The Aleuts inhabit parts of Aliaska Peninsula, the Shumagin Islands, and the Aleutian chain. The Athabaskans include a large number of tribes generally classed as "North American Indians," extending from the mouth of the Mackenzie River in the north to the borders of Mexico in the south. The northern tribes extend west nearly to Bering Sea, touching the coast only in the northern part of Cook Inlet. At every other point they are separated from the ocean by a belt of Eskimo. The Thlinket inhabit the coast and islands from the intersection of the one hundred and forty-first meridian to the southern boundary of Alaska. Detailed descriptions of the tribes are given in "Petroff's Population, Industries, and Resources of Alaska"; by Dall, in "Alaska and Its Resources," and by Lieutenant Schwatka (Military Reconnoissance in Alaska).

The report of Governor Knapp for 1892 says: "The Athabascans and Eskimos have come less under the influences of contact with white people than the other tribes, and therefore retain more of their original customs and peculiarities. They

occupy the interior and the coast of the Arctic Ocean and Bering Sea. The Eskimos are a comparatively gentle and inoffensive people, living mostly upon fish, walrus, whale, and other game to be found near the shores and in the water, though they also make long excursions into the interior, hunting reindeer, moose, and other large animals. The interior Indians (Athabascans) live mostly by hunting and fishing in the rivers. A few mission stations along the coast and on the Yukon River have had a little influence upon a very small number of the people. The mining camps on the upper Yukon have also come in contact with the natives to some extent in the way of trade, but they have not in any large degree acted as civilizing agencies. It is said that the natives of the upper Yukon region have been very little demoralized by the use of intoxicating liquor, perhaps on account of the difficulty of packing it across the divide. Mr. Chapman, of Anvik, writes that "liquor has not troubled the natives speaking the group of dialects found around Anvik; but almost everywhere else in the Yukon country it has made more or less trouble." The dialects referred to arise from the inter-relations of Eskimos and Athabascans

at the point of contact. The Eskimos and interior Indians find it necessary to exercise the utmost of their energies and of their ingenuity to secure a bare subsistence, and their ideas have not risen much above the level of animal existence. Physically, they are strong and comparatively healthy; mentally, they lack vigor; morally, they substitute expediency for right. They are comparatively honest, because it is the best policy to be so. They see no moral quality in abstaining from the use of intoxicating liquors, tobacco, or other hurtful things, or in restraints in the relations of the sexes.

Except as their ideas are modified by relations and intercourse with white people, they have no religion; unless certain indefinite superstitions, having no connection with any idea of a supreme spiritual being, can be called religion.

The Aleuts have become thoroughly Russianized. They talk Russian, belong to the Russian Orthodox Church, shade off into Russian blood, features, and complexion, and affect Russian ideas. They are rapidly fading away. Their physical condition is far from being satisfactory, and their moral condition is worse. They are easy-going, gentle, and kindly disposed people, somewhat lacking in force of character. They

secure a comfortable living with their sea-otter hunting and fishing, and have little forethought as to the future.

The Thlingkets, Tsimpseans, and Hydas live in southeastern Alaska, and are very similar in character and habits, though their languages are different. Their contact with white people has very much modified them in many respects, and many of them now converse freely in the English language, while a few of them can read and write.

TOWNS AND TRADING POSTS.

The capital of the Territory is Sitka, located in 57 degrees north, 135 degrees and 17 minutes west, on a low strip of land on the west of Baranof Island. Mount Edgecumbe, an extinct volcano of 8,000 feet, opposite the town, is the landmark of the port. There is an industrial school, and the population was 1,190 in 1890. Salmon fishing and curing is the chief industry. Steamers ply once a month between Sitka and Portland, Oregon. The harbor is small but commodious. Mean temperature (forty-three years): January, 31.4 degrees; August, 55.9 degrees. Annual rain-

fall (thirty years), 84.06 inches. Senator Charles Sumner of Massachusetts called attention to the fact that the winter of Sitka is milder than that of many European capitals—Berlin, Copenhagen, Berne, Stuttgart, Vienna, or Turin. Mr. Dall (p. 255) says that the shortest distance from San Francisco Harbor to Sitka is 1,296 miles. By the inner passage, between the archipelago and the coast of British Columbia and Alaska, the distance is 1,647 miles; large sailing vessels have to go outside. Juneau (population, 1,253, census of 1890) is located near the Lynn Channel, by which there are trails to the Yukon. Mr. Wilson ("Guide to the Yukon Gold Fields") says that the year 1895 witnessed a great improvement in the town, and Juneau is to-day a progressive city, with fine buildings, wharves, electric lights, waterworks, hotels, etc.

Wrangell, on the northern part of the island of the same name, is about ten miles from the mouth of the Stikine, and is the point of departure for traders and miners penetrating into the interior by way of that river. The regular mail steamer from Portland touches here both on the outward and return trips. There are 316 inhabitants.

Douglas City, on Douglas Island, near Juneau, has a population of 402. This is the location of

the Treadwell gold mine, with, it is said, the largest quartz mill in the world. Yukatat (population, 308) is on Yukatat Bay. Nuchek is situated on Hinchinbrook Island, 432 miles by sea from Sitka, and 50 miles from the mouth of Copper River. It was formerly an important trading post, but much of the commerce has been transferred.

In regard to the Kenai peninsula, Mr. Petroff says:

"Two of the trading stations are located at English Bay and Seldovia. Three more stations, consisting each of two rival stores, are located at Kenai (Rédoute St. Nicholas), on the River Kinik, and the village of Toyonok, or West Foreland.

"The central point of all this region is Kenai, once the site of the earliest permanent settlement on the inlet, the remnants of which can still be seen. A Russian missionary is located here, and a new church is nearly completed. At the time of the transfer of the Territory, Kenai was still a fortified place, with a high stockade and octagonal bastions at the salient points. Both stockade and bastions, with their primitive armament of one and one-half pound falconets, have disappeared since then, but a number of new buildings have sprung up,

and a thrifty colony of creoles has taken to the cultivation of potatoes and turnips on a larger scale than had ever been attempted before. Perhaps ten or twelve acres are planted here now, and several of the families keep cattle. Some of the choicest salmon of the Territory is salted here, and is barreled and shipped to San Francisco. The hunting grounds in the immediate vicinity do not yield their former abundance of valuable furs, but the presence of the missionary establishment causes a concentration of natives from all parts of the inlet at least once a year and brings considerable trade to this old station. It was on the River Kaknu, or Kenai, that the Russian mining engineer Doroshin reported the existence of surface gold in paying quantities. After laboring with a numerous party in the mountains for two seasons, at a great expense to the Russian-American Company, he returned with a few ounces of the precious metal, but he could present no inducement to the corporation to proceed any further in this enterprise. Since that time American prospectors have passed years in this region following up the Russian's tracks, but not one of them has thus far found gold enough to warrant him to work the find. In former years

Kenai was also the site of a large brickyard, the only establishment of the kind in the colony, from which all stations and settlements were supplied with the material for the old-fashioned Russian ovens or heaters.

"About thirty miles down the coast from Kenai there is another settlement deserving at least a passing notice. A number of 'colonial citizens,' or superannuated employes of the old Russian company, were ordered to settle some fifty or sixty years ago at Ninilchik, and their descendants live there still. Each family has quite a large garden patch of turnips and potatoes, yielding enough to allow the owners to dispose of a large surplus to traders and fishermen. They have quite a herd of cattle, and the women actually make butter; but they are not sufficiently advanced in farming lore to construct or use a churn, and the butter is made in a very laborious manner by shaking the cream in bottles. They also raise pigs and poultry, but on account of the hogs running to the seashore, digging clams and feeding upon kelp, and the chickens scratching among fish bones and other offal, both their poultry and pork are fishy to such an extent as to be made unpalatable.

"In the vicinity of Anchor Point, on Kuchekmak Gulf, and on Graham's, or English Harbor, extensive coal veins appear along the bluffs and come to the surface. The Russian-American Company, jointly with a San Francisco firm, worked here for years to develop the mines and obtain a product good enough for the use of steamers and engines, but after sinking a large capital the enterprise was abandoned before the transfer of the Territory took place. A few remnants of the extensive buildings erected in connection with these mining operations still remain on the north shore of English Bay."

St. Paul, on the northern part of Kadiak Island, does a large fur trade. There are a number of salmon canneries on the island, employing in 1890, according to Longman's Gazetteer (p. 764), 1,100 hands. Karluk (population, 1,123) is said to have the largest cannery in the world. Kadiak (495), Alitak (420), and Afognak (409), are other villages on the island.

On the Aleutian Islands there are many settlements. The one on Ounga Island has a population of about 200, according to Mr. Petroff. Belkowsky, on the southern end of the Aliaska Peninsula, has 300 inhabitants. Near Protassoff (100 inhabitants) there are warm sulphur springs

and ponds. Iliuliuk, on Unalaska Island, is a point of considerable commercial importance, having a church, custom-house, trading establishments, wharves, etc. Nikolsky, on the south of Unimak Island, has 127 inhabitants; it was formerly much larger. Nazan, on Atkha Island, has a population of 230, described by Mr. Petroff as thrifty and prosperous. St. Paul, on the Pribilof Islands, had, in 1882, a population of 298. The Amukhta (172 degrees longitude) and the Unimak (160 degrees longitude) are the two safe passes between the islands.

St. Michaels, on Norton Sound, is one of the most important localities on the coast. It is a trading post, says Mr. Petroff, where rival firms have established their depots for the Yukon River and Arctic trade. The station-keepers come down from the interior to the coast at the end of June or first of July, and each receives his allotment of goods to take back with him in sail-boats and bidars during the few months when navigation on the river is not impeded by ice. The vessels supplying this depot can seldom approach the post before the end of June, on account of large bodies of drifting ice that beset the waters of Norton Sound and the straits between St. Lawrence Island and the Yukon

delta. St. Michaels is the usual landing place for the Yukon valley. Travelers follow a trail across the country, and reach Yukon some 392 miles from its mouth. Lieutenant Allen says that the distance from St. Michaels to the mouth of the Unalaklik River is fifty-five miles by coast. He ascended the river fourteen miles to a village called Ulukuk, and followed the trail some thirty-two miles to the Autokakat River. A descent of this stream for three miles brought him to the Yukon.

Port Clarence, on the bay of the same name, is the place where whalers wait for their tenders before proceeding through the straits. The harbor is excellent. There is a reindeer farm here, and the population numbers 485. Point Hope (population, 301), Cape Lisburne, Icy Cape, and Point Barrow are the most important points on the northern coast.

Nulato and Nuklakayet are trading posts on the Yukon River, the former being 467 miles from the sea, according to Lieutenant Allen, and Nuklakayet 201 miles farther. Fort Yukon (about 300 miles distant from Nuklakayet) was formerly a trading post. Lieutenant Schwatka says it was abandoned about 1880 as not remunerative, and Fort Reliance and Belle

Isle were established. Both of these have since been abandoned. At Fort Yukon the river is said to be seven miles wide.

Circle City, between Fort Yukon and Belle Isle, had a population in 1896 of 1,150. (Report on Introduction of Domestic Reindeer into Alaska, by Sheldon Jackson, D. D., Senate Doc. No. 49, Fifty-fourth Congress, second session.) Missions have been established and hospitals proposed. There are some forty white women in the district.

FORESTS OF ALASKA—VARIETIES OF TIMBER.

Speaking of the resources of Alaska, Mr. Petroff says:

"The timber of Alaska extends over a much larger area than a great many surmise. It clothes the steep hills and mountain sides, and chokes up the valleys of the Alexander archipelago and the contiguous mainland; it stretches, less dense, but still abundant, along that inhospitable reach of territory which extends from the head of Cross Sound to the Kenai Peninsula, where, reaching down to the westward and southwestward as far as the eastern half of Kadiak Island, and thence across Shelikof Strait,

it is found on the mainland and on the peninsula bordering on the same latitude; but it is confined to the interior opposite Kadiak, not coming down to the coast as far eastward as Cape Douglas. Here, however, it impinges on the coast or Cook Inlet, reaching down to the shores and extending around to the Kenai Peninsula. From the interior of the peninsula above referred to the timber line over the whole of the interior of the great area of Alaska will be found to follow the coast line, at varying distances of from 100 to 150 miles from the seaboard, until that section of Alaska north of the Yukon mouth is reached, where a portion of the coast of Norton Sound is directly bordered by timber as far north as Cape Denbigh. From this point to the eastward and northeastward a line may be drawn just above the Yukon and its immediate tributaries as the northern limit of timber of any considerable extent."

The trees, adds Mr. Petroff, are mostly evergreen, the spruce family preponderating to an overwhelming extent. Boards of the spruce are not adapted for nice finishing work in building, or in cabinet ware, or, indeed, in anything that requires a finish; for under the influence of slight degrees of heat, it sweats, exuding

minute globules of gum or resin, sticky and difficult to remove. The white birch is found throughout the region that supports the spruce—scattered or in small bodies—chiefly along the water courses. The alder and willow are found on all the low lands, reaching far beyond the northern and western limit of the spruce. A poplar, resembling our cottonwood, attaining great size under favorable circumstances, is also found in nearly all the timbered sections of Alaska south of the Arctic Circle. To the westward of the one hundred and forty-first meridian, no timber grows at an altitude higher than 1,000 feet above the sea level. A slightly curved line, beginning at the intersection of the coast hills of the east shore of Norton Sound with the Unalaklik River, passing across the Yukon and Kuskokwim rivers, the mouth of the Nushagak, across the Alaska Peninsula, and impinging upon the North Pacific in the vicinity of Orlova Bay, on Kadiak Island, will serve as the western limit of spruce forest in Alaska.

With reference to quality, continues Mr. Petroff, the trees may be divided as follows:

“First. **YELLOW CEDAR.**—This is one of the most valuable woods on the Pacific Coast, combining a fine, close texture with great hardness,

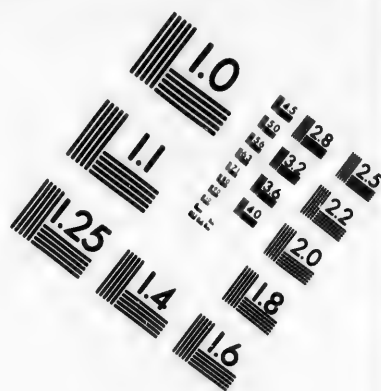
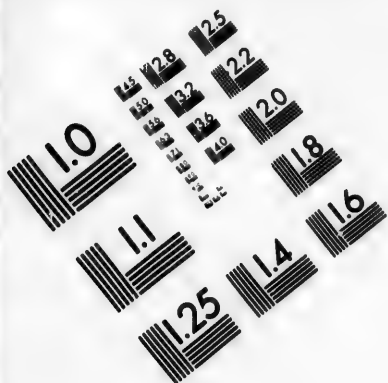
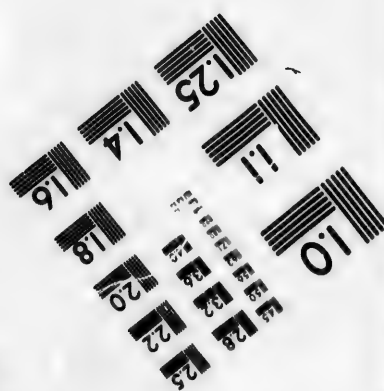
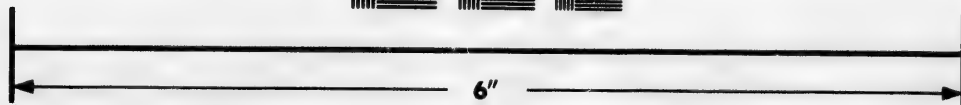
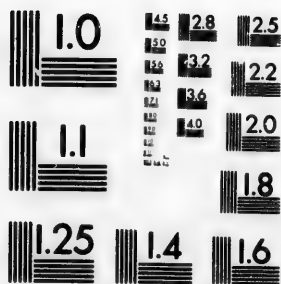


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durability, and a peculiar but pleasant odor. The Russians named it 'dushnik' (scented wood) on account of the last-named quality. In the immediate vicinity of Sitka, on Baranof and adjoining islands, this tree was nearly exterminated by the Russians, but on the Kehk Archipelago (Koo Island) and on Prince of Wales Island and a few others of the Alexander Archipelago, near the British Columbian frontier, considerable bodies of it can still be found, and beyond the line, in the Nass and Skeena River valleys, it is also abundant.

"Second. SITKA SPRUCE.—This is the universal forest tree of Alaska, and is found of gigantic size on the islands of the Alexander Archipelago and on the shores of Prince William Sound. Its medium growth it appears to attain in the valleys of the Yukon and Kuskokwim, while on the east side of Cook Inlet and on the more northern uplands, it is quite stunted and dwarfed. The Sitka spruce is most closely connected with the various requirements of all Alaskan natives in their domestic economy, as its timber is used in the construction of nearly every dwelling throughout the country, and even those tribes which inhabit barren coasts far removed from the limits of coniferous trees are supplied with

it through means of freshets and ocean currents. The sappy outer portions of the wood furnishes splinters and torches that light up during the long months of winter the dark dwellings of interior tribes of Tinneh stock, who know not the oil lamp of their Innuit neighbors. The same material is also used for sledge runners on loose but crisp-frozen snow, over which iron or steel would drag with difficulty, as over deep, coarse sand. The Thlinket and the Hyda fashion their buoyant and graceful canoes, both large and small, from spruce logs, and split from them also the huge planks used in the construction of their houses. The lumber manufactured from the Sitka spruce is much less durable than the yellow cedar, very knotty, and consequently not adapted for shipbuilding.

"Third. HEMLOCK.—Though this tree generally exceeds the spruce in size, it is of rare occurrence, much less valuable as timber, but well adapted for fuel.

"Fourth. BALSAM FIR.—This tree is found only in small, scattered bodies, and is of little value as timber, but the natives use its bark for tanning and other purposes.

"Fifth. SCRUB PINE.—The scrub pine is found throughout the interior of Alaska in

small, scattered bodies up to the highest latitudes, but it is of no value as timber.

"Thus it will be seen that the forests of Alaska are altogether coniferous, as the small bodies of birch and the alder and willow thicket on the lower Yukon and Kuskokwim Rivers can scarcely be considered to come under this head. Aside from the yellow cedar, which is rare, the timber wealth of Alaska consists of the Sitka spruce, which is not only abundant and large (trees of from three to four feet in diameter being quite common in southeastern Alaska and Prince William Sound), but also generally accessible.

"To give even an approximate estimate of the area of timbered lands in Alaska is at present impossible, in view of our incomplete knowledge of the extent of mountain ranges, which, though falling within the timber limits, must be deducted from the superficial area of forest covering.

"A few small sawmills of exceedingly limited capacity have been erected at various points in southeastern Alaska to supply the local demand of trading posts and mining camps, but finished building lumber is still largely imported even into this heavily timbered region. In all western Alaska but one small sawmill is known to exist, which is on Wood Island, St. Paul Harbor,

Kadiak. This mill was first set up to supply sawdust for packing ice, but since the collapse of that industry its operations have been spasmodic and not worth mentioning. Lumber from Puget Sound and British Columbian mills is shipped to nearly all ports in western Alaska for the use of whites and half-breeds, while the natives in their more remote settlements obtain planks and boards by the very laborious process of splitting logs with iron or ivory wedges. On the treeless isles of Shumagin and Aleutian groups, as well as in the southern settlements of the Alaska Peninsula, even firewood is imported from more favored sections of the Territory, and commands high prices.

"The driftwood washed upon the shores of Bering Sea and the Arctic is of very little value as building material and cannot be worked into lumber."

COMMERCE

It is difficult to obtain statistics in regard to the trade of Alaska, since the transportation of imports and exports is accomplished less by the regular lines than through special conveyances. The large companies engaged in business in the

Territory usually employ their own ships. There were some eighty-seven trading houses reported in Alaska in 1891, located in not less than sixty towns and villages, and scattered from Point Barrow to the southern extremity, and from Loring to Attu. The number of stores for the sale of general merchandise in southeastern Alaska in 1892 was forty-seven. The imports consist of merchandise, machinery, powder, clothing, provisions, tools, furniture, etc. The exports are made up of fish, furs, whalebone, ivory, oils, gold and silver bullion, and ores. The total imports in 1892, according to the report of Governor Knapp, of Alaska, amounted to the value of \$2,164,238. The exports are classified as follows:

EXPORTS.

Furs, curios, etc., from 13 stations, southeast Alaska.....	\$ 351,000
1,220,000 codfish (7,500 tons).....	375,000
789,294 cases of salmon.....	3,157,176
9,000 barrels of salted salmon.....	81,000
186,250 pounds whalebone.....	1,210,625
1,000 pounds ivory.....	5,000
12,228 barrels whale oil.....	103,668
Product of the Killisnoo manufactory, oil and guano.....	114,000
Gold bullion, Alaska Treadwell Gold Mining Company.....	707,017
Gold and silver ore and bullion by other companies.....	400,000

13,500 seal skins taken under the lease;	
52,087 seal skins taken by sealing	
fleet; 10,000 seal skins taken by	
natives and others.	755,587
Furs shipped by the Alaska Commercial	
Company.	348,991
Furs shipped by other parties, western	
Alaska.	90,000
Other products not enumerated.	60,000
Total	\$7,759,064

Balance of exports above imports, \$5,594,886.

Among the furs may be mentioned those of the sea otter, the seal, the beaver, the silver and blue fox, the mink, and the marten.

Mr. Petroff ("Alaska, Its Population, Industries, and Resources," 1884,) says:

"In the regions inhabited by the sea-otter hunters and on the Pribiloff Islands, a barrel of flour per annum is consumed for each man, woman, and child more than the average in civilized communities. Traders report that the demand for flour and hard bread increases annually, even among the tribes of the interior. The demand for tea, also, is steadily gaining, and the consumption of sugar is universal wherever it can be carried by the traders, but is especially large in those sections of Alaska (especially in the southeast) where the creoles and natives understand the manufacture of alcohol from

sugar and molasses. Including the southeastern division, which is supplied chiefly from Portland, Oregon, and British Columbia, the annual shipment of flour may be estimated at not less than 10,000 barrels, or a barrel for every three individuals of its population. If to this are added 5,000 or 6,000 cases of hard bread, 1,200 chests of tea, and 2,500 barrels of sugar, it is seen that the trade with Alaska in these staples alone is assuming considerable proportions. The shipments of tobacco aggregated from 15,000 to 20,000 pounds. Of the value of dry goods it is impossible to make an estimate, but it is safe to assume that it does not equal that of groceries, or provisions."

MAIL AND TRANSPORTATION FACILITIES.

Governor Knapp, in his report for 1892, says: "The mail contract with the Pacific Coast Steamship Company requires stoppage for receipt and delivery of mail by their regular passenger and freight steamers, two each month, at seven ports, viz.: Kichkan, in Tongass Narrows, Loring, Wrangell, Douglas, Juneau, Killisnoo, and Sitka. For this service they are paid the sum of \$18,000 per year. When other trips are

made and other places are visited by the steamers of the company, mails are also carried and delivered on those trips and at those other places. By this more uncertain service, several mails have been delivered at Metlakahtla, Mary Island, Chilkat, and Hoonah, and the mail has been carried weekly instead of semi-monthly to the first-named places during the months of June, July, and August. Another mail contract insures monthly mails served from Wrangell to Klawak and Howkan (or Jackson, which is the postoffice name). A small steamer or steam launch plies between Wrangell and Howkan. Between Sitka and Unalaska, a distance of about 1,350 miles, a small steamer has made seven regular monthly trips, stopping at six places, from April to October."

In "Special Consular Reports, Highways of Commerce," 1895, p. 29, it is stated that the fare from San Francisco to Wrangell, by the Pacific Coast Steamship Company, is \$50; to Juneau or Sitka, \$70. There is also steamship service from St. Michaels, via Unalaska, to Seattle and San Francisco.

The report of the Second Assistant Postmaster-General of the United States for 1896 says that a postoffice was authorized at Circle City March

19, 1896. The carrier for the first trip started from Juneau June 11, and reached Circle City July 14, carrying 1,474 letters. He returned by way of St. Michael, reaching Seattle August 19. On the second trip, the carrier left Juneau July 8, reaching Circle City August 6. Another trip was to be made in September, and four between November and May, 1897.

PROPOSED RAILROAD.

In 1886, in reply to an inquiry on the part of the United States Senate, the Director of the United States Geological Survey, Mr. J. W. Powell, presented a report on the feasibility of constructing a railroad between the United States, Asiatic Russia, and Japan. Mr. Powell said that from all available information, the proposed line appeared to present no greater obstacles than those already overcome in transcontinental railroad building. It was suggested that the line start from some point on the Northern Pacific Railroad in Montana and run, via the head waters of the Peace River, to the head waters of the Yukon; and thence to some point on the shore of Bering Sea, the total distance covered being about 2,765 miles. A branch line of 375

miles from the head waters of the Peace River might run to the mouth of the Stikine River, so as to facilitate communication with Sitka.

TERRITORIAL GOVERNMENT.

In 1884 a district government was created by Congress for Alaska, with a governor and a district court, which sits alternately at Sitka and Wrangell. The laws are those of Oregon. There is a land office at Sitka. Commissioner Hermann, of the United States General Land Office, on July 31, 1897, stated that the mineral land laws of the United States, the town-site laws (providing for the incorporation of town sites and acquirement of title thereto from the Government to the trustee), and the law providing for trade and manufactures, giving each qualified person 160 acres of land in a square and compact form, are applicable in Alaska. The coal-land regulations and the public-land laws do not extend to Alaska, as the Territory is expressly excluded by the laws themselves from their operation.

The following is a list of United States officers in Alaska, furnished by the Department of the Interior, August 7, 1897:

John G. Brady, governor, Sitka.

Albert D. Elliot, clerk of the court and ex-officio secretary of Alaska, Sitka.

William L. Distin, surveyor-general, Sitka.

John W. Dudley, register of the land office, Sitka.

Ruswell Shelly, receiver of public moneys, Sitka.

Caldwell W. Tuttle, commissioner at Sitka.

Kenneth M. Jackson, commissioner at Wrangell.

Lycurgus R. Woodward, commissioner at Unalaska.

John Y. Ostrander, commissioner at Juneau City.

Philip Gallaher, commissioner at Kadiak.

John E. Crane, commissioner at Circle City.

L. B. Shepard, commissioner at St. Michaels.

John U. Smith, commissioner at Dyea.

Charles H. Isham, commissioner at Unga.

The following is a list of the judicial officers of the United States in Alaska, furnished by the Department of Justice, August 7, 1897:

Charles S. Johnson, district judge, Sitka.

Burton E. Bennett, United States attorney, Sitka.

Alfred J. Daly, assistant United States attorney, Sitka.

James M. Shoup, United States marshal, Sitka.

**FROM REPORTS OF WILLIAM OGILVIE,
CHIEF SURVEYOR, DOMINION
OF CANADA.**

**SURVEY OF FORTY MILE RIVER, FROM ITS
MOUTH TO THE INTERNATIONAL
BOUNDARY LINE.**

"On the 9th of February I started with the survey from where I had left it in the summer, as already mentioned.

"During the progress of this work the weather was cold, and as the days were only four or five hours long the progress was necessarily slow, so that I did not complete the survey to the boundary until the 12th. The distance from the mouth of the Forty Mile River up it to the boundary is, by the river, twenty-three miles. I marked the intersection of the river by the boundary by blazing trees on both sides and marked on some of the trees the letters 'A' and 'C' on the west and east sides, respectively, for Alaska and Canada.

"The natural features of the ground here afford a good mark. On the north side of the river two small creeks fall into Forty Mile River,

almost together, and between them there is a sharp, rocky mound about 150 feet high. This mound stands where the boundary crosses the river, and from this point one can see northward up the valleys of the creek for several miles. This is the first place on the river where such a distant view can be had.

"I returned to the post at the mouth of the river, and spent two days with the traders Harper and McQuestion and the miners who were camped around.

"Harper, McQuestion & Co. moved from Stewart River down to this point in the spring of 1887, so as to be where most of the miners were located. On Forty Mile River, in the season of 1886, coarse gold was found, the first discovery on the Yukon or any of its tributaries. Coarse gold is the desideratum of all gold miners, and as soon as the news of the discovery spread to the other mining camps, where nothing but fine or dust gold had yet been found, they all repaired to the coarse gold diggings on Forty Mile.

"About one hundred miners wintered in the country, most of whom camped at Forty Mile. A few wintered down at the old trading post built by F. Mercier, and named by him

Belle Isle. This post is where Lieutenant Schwatka located the International Boundary, but it is about twelve miles below the boundary by my survey and observations.

"When I was at Forty Mile River the miners were very anxious to see me and to know our mining regulations and laws. I explained everything they inquired about as fully as my knowledge and the documents at my disposal would permit. Many of them, who were used to the United States system of each mining community making its own by-laws, based on the general mining law of the country, and electing their own recorder to attend to the regulations and see them carried out, thought some of our regulations rather stringent and hard. I heard their statements and answered such of them as I could, and also promised to lay their views before the department. This I have already done, in a report sent in by me in the spring of 1888. As this report is of purely administrative import, it is not necessary to quote it here.

"During the winter there were many cases of sickness at Forty Mile, most of them scurvy. There were three deaths, only one of which was due to scurvy.

"I returned to my quarters on the 17th of

February, and immediately set the party at work drawing the canoes and instruments, and about four months' provisions, down to Belle Isle, about fifteen miles down the river from my house. This was to be our starting point for the Mackenzie River.

DESCRIPTION OF THE YUKON, ITS AFFLUENT
STREAMS AND THE ADJACENT COUNTRY.

"I will now give, from my own observation and from information received, a more detailed description of the Lewes River, its affluent streams, and the resources of the adjacent country.

"For the purpose of navigation a description of the Lewes River begins at the head of Lake Bennet. Above that point, and between it and Lake Lindeman, there is only about three-quarters of a mile of river, which is not more than fifty or sixty yards wide and two or three feet deep, and is so swift and rapid that navigation is out of the question.

"Lake Lindeman is about five miles long and half a mile wide. It is deep enough for all ordinary purposes. Lake Bennet* is twenty-

*A small saw-mill has been erected at the head of Lake Bennet; lumber for boat building sells at \$100 per M. Boats 25 feet long and 5 feet beam are \$60 each. Last year the ice broke up in the lake on the 12th June, but this season is earlier and the boats are expected to go down the lake about the 1st of June.

six and a quarter miles long, for the upper fourteen of which it is about half a mile wide. About midway in its length an arm comes in from the west, which Schwatka appears to have mistaken for a river, and named Wheaton River. This arm is wider than the other arm down to that point, and is reported by Indians to be longer and heading in a glacier which lies in the pass at the head of Chilkoot Inlet. This arm is, as far as seen, surrounded by high mountains, apparently much higher than those on the arm we traveled down. Below the junction of the two arms the lake is about one and a half miles wide, with deep water. Above the forks the water of the east branch is muddy. This is caused by the streams from the numerous glaciers on the head of the tributaries of Lake Lindeman.

"A stream which flows into Lake Bennet at the southwest corner is also very dirty, and has shoaled quite a large portion of the lake at its mouth. The beach at the lower end of this lake is comparatively flat and the water shoal. A deep, wide valley extends northward from the north end of the lake, apparently reaching to the cañon, or a short distance above it. This may have been originally a course for the waters of

the river. The bottom of the valley is wide and sandy, and covered with scrubby timber, principally poplar and pitch-pine. The waters of the lake empty at the extreme northeast angle through a channel not more than one hundred yards wide, which soon expands into what Schwatka called Lake Nares*. Through this narrow channel there is quite a current, and more than seven feet of water, as a six-foot paddle and a foot of arm added to its length did not reach the bottom.

"The hills at the upper end of Lake Lindeman rise abruptly from the water's edge. At the lower end they are neither so steep nor so high.

"Lake Nares is only two and a half miles long, and its greatest width is about a mile; it is not deep, but is navigable for boats drawing five or six feet of water; it is separated from Lake Bennet by a shallow, sandy point of not more than two hundred yards in length.

"No streams of any consequence empty into either of these lakes. A small river flows into Lake Bennet on the west side, a short distance

*The connecting waters between Lake Bennet and Tagish Lake constitute what is now called Caribou Crossing.

north of the fork, and another at the extreme northwest angle, but neither of them is of any consequence in a navigable sense.

"Lake Nares flows through a narrow, curved channel above Bove Lake (Schwatka). This channel is not more than six or seven hundred yards long, and the water in it appears to be sufficiently deep for boats that could navigate the lake. The land between the lakes along this channel is low, swampy, and covered with willows, and, at the stage in which I saw it, did not rise more than three feet above the water. The hills on the southwest side slope up easily, and are not high; on the north side the deep valley already referred to borders it, and on the east side the mountains rise abruptly from the lake shore.

"Bove Lake (called Tagish Lake by Dr. Dawson) is about a mile wide for the first two miles of its length, when it is joined by what the miners have called the Windy Arm. One of the Tagish Indians informed me they called it Takone Lake. Here the lake expands to a width of about two miles for a distance of some three miles, when it suddenly narrows to about half a mile for a distance of a little over a mile, after which it widens again to about a mile and a half or more.

"Ten miles from the head of the lake it is joined by the Taku Arm from the south. This arm must be of considerable length, as it can be seen for a long distance, and its valley can be traced through the mountains much farther than the lake itself can be seen. It is apparently over a mile wide at its mouth or junction.

"Dr. Dawson includes Bove Lake and these two arms under the common name of Tagish Lake. This is much more simple and comprehensive than the various names given them by travelers. These waters collectively are the fishing and hunting grounds of the Tagish Indians, and as they are really one body of water, there is no reason why they should not be all included under one name.

"From the junction with the Taku Arm to the north end of the lake the distance is about six miles, the greater part being over two miles wide. The west side is very flat and shallow, so much so that it was impossible in many places to get our canoes to the shore, and quite a distance out in the lake there was not more than five feet of water. The members of my party who were in charge of the large boat and outfit, went down the east side of the lake and reported the depth about the same as I found on the west

side, with many large rocks. They passed through it in the night in a rainstorm, and were much alarmed for the safety of the boat and provisions. It would appear that this part of the lake requires some improvement to make it in keeping with the rest of the water system with which it is connected.

“Where the river debouches from it, it is about one hundred and fifty yards wide, and for a short time not more than five or six feet deep. The depth is, however, soon increased to ten feet or more, and so continues down to what Schwatka calls Marsh Lake. The miners call it Mud Lake, but on this name they do not appear to be agreed, many of them calling the lower part of Tagish or Bove Lake ‘Mud Lake,’ on account of its shallowness and flat, muddy shores, as seen along the west side, the side nearly always traveled, as it is more sheltered from the prevailing southerly winds. The term ‘Mud Lake’ is, however, not applicable to this lake, as only a comparatively small part of it is shallow or muddy, and it is nearly as inapplicable to Marsh Lake, as the latter is not markedly muddy along the west side, and from the appearance of the east shore one would not judge it to be so, as the banks appear to be high and gravelly.

"Marsh Lake is a little over nineteen miles long, and averages about two miles in width. I tried to determine the width of it as I went along with my survey, by taking azimuths of points on the eastern shore from different stations of the survey; but in only one case did I succeed, as there were no prominent marks on that shore which could be identified from more than one place. The piece of river connecting Tagish and Marsh Lakes is about five miles long, and averages 150 to 200 yards in width, and, as already mentioned, is deep, except for a short distance at the head. On it are situated the only Indian houses to be found in the interior with any pretension to skill in construction. They show much more labor and imitativeness than one knowing anything about the Indian in his native state would expect. The plan is evidently taken from the Indian houses on the coast, which appears to me to be a very poor copy of the houses which the Hudson's Bay Company's servants build around their trading posts. These houses do not appear to have been used for some time past, and are almost in ruins. The Tagish Indians are now generally on the coast, as they find it much easier to live there than in their own

country. As a matter of fact, what they make in their own country is taken from them by the Coast Indians, so that there is no inducement for them to remain.

"The Lewes River, where it leaves Marsh Lake, is about 200 yards wide, and averages this width as far east as the cañon. I did not try to find bottom anywhere as I went along, except where I had reason to think it shallow, and there I always tried with my paddle. I did not anywhere find bottom with this, which shows that there is no part of this stretch of the river with less than six feet of water at medium height, at which stage it appeared to me the river was at that time.

"From the head of Bennet Lake to the cañon the corrected distance is ninety-five miles, all of which is navigable for boats drawing five feet or more. Add to this the westerly arm of Lake Bennet and the Takone, or Windy Arm of Tagish Lake, each about fifteen miles in length, and the Taku Arm of the latter lake, of unknown length, but probably not less than thirty miles, and we have a stretch of water of upward of one hundred miles in length, all easily navigable; and, as has been pointed out, easily connected with Taiya Inlet through the White Pass.

"No streams of any importance enter any of these lakes so far as I know. A river, called by Schwatka 'McClintock River,' enters Marsh Lake at the lower end from the east. It occupies a large valley, as seen from the westerly side of the lake, but the stream is apparently unimportant. Another small stream, apparently only a creek, enters the southeast angle of the lake. It is not probable that any stream coming from the east side of the lake is of importance, as the strip of country between the Lewes and Teslintoo is not more than thirty or forty miles in width at this point.

"The Taku Arm of Tagish Lake is, so far, with the exception of reports from Indians, unknown; but it is equally improbable that any river of importance enters it, as it is so near the source of the waters flowing northward. However, this is a question that can only be decided by a proper exploration. The cañon I have already described, and will only add that it is five-eighths of a mile long, about 100 feet wide, with perpendicular banks of basaltic rock from 60 to 100 feet high.

"Below the cañon proper there is a stretch of rapids for about a mile; then about half a mile of

smooth water, following which are the White Horse Rapids, which are three-eighths of a mile long and unsafe for boats.

"The total fall in the cañon and succeeding rapids was measured and found to be thirty-two feet. Were it ever necessary to make this part of the river navigable, it will be no easy task to overcome the obstacles at this point; but a tram or railway could, with very little difficulty, be constructed along the east side of the river past the cañon.

"For some distance below the White Horse Rapids the current is swift and the river wide, with many gravel bars. The reach between these rapids and Lake Labarge, a distance of twenty-seven and a half miles, is all smooth water, with a strong current. The average width is about 150 yards. There is no impediment to navigation other than the swift current, and this is no stronger than on the lower part of the river, which is already navigated; nor is it worse than on the Saskatchewan and Red Rivers in the more eastern part of our territory.

"About midway in this stretch the Tahkeena River* joins the Lewes. This river is, appar-

*The Tahkeena was formerly much used by the Chilkat Indians as a means of reaching the interior, but never by the miners, owing to the distance from the sea to its head.

ently, about half the size of the latter. Its waters are muddy, indicating its passage through a clayey district. I got some indefinite information about this river from an Indian who happened to meet me just below its mouth, but I could not readily make him understand me, and his replies were a compound of Chinook, Tagish, and signs, and therefore largely unintelligible. From what I could understand with any certainty, the river was easy to descend, there being no bad rapids, and it came out of a lake much larger than any I had yet passed.

"Lake Labarge is thirty-one miles long. In the upper thirteen it varies from three to four miles in width; it then narrows to about two miles for a distance of seven miles, when it begins to widen again, and gradually expands to about two and a half or three miles, the lower six of it maintaining the latter width. The survey was carried along the western shore, and while so engaged I determined the width of the upper wide part by triangulation at two points, the width of the narrow middle part at three points, and the width of the lower part at three points. Dr. Dawson, on his way out, made a track survey of the eastern shore. The western shore is irregular in many places, being indented by

large bays, especially at the upper and lower ends. These bays are, as a rule, shallow, more especially those at the lower end.

"Just above where the lake narrows in the middle there is a large island. It is three and a half miles long and about half a mile in width. It is shown on Schwatka's map as a peninsula, and called by him Richtofen Rocks. How he came to think it a peninsula I cannot understand, as it is well out in the lake; the nearest point of it to the western shore is upward of half a mile distant, and the extreme width of the lake here is not more than five miles, which includes the depth of the deepest bays on the western side. It is, therefore, difficult to understand that he did not see it as an island. The upper half of this island is gravelly, and does not rise very high above the lake. The lower end is rocky and high, the rock being of a bright red color.

"At the lower end of the lake there is a large valley extending northward, which has evidently at one time been the outlet of the lake. Dr. Dawson has noted it and its peculiarities.

"The width of the Lewes River as it leaves the lake is the same as at its entrance, about 200 yards. Its waters when I was there were murky. This is caused by the action of the waves on the

shore along the lower end of the lake. The water at the upper end and at the middle of the lake is quite clear, so much so that the bottom can be distinctly seen at a depth of five or six feet. The wind blows almost constantly down this lake, and in a high wind it gets very rough. The miners complain of much detention owing to this cause, and certainly I cannot complain of a lack of wind while I was on the lake. This lake was named after one Mike Labarge, who was engaged by the Western Union Telegraph Company exploring the river and adjacent country for the purpose of connecting Europe and America by telegraph through British Columbia and Alaska, and across Bering Strait to Asia, and thence to Europe. This exploration took place in 1867, but it does not appear that Labarge then, nor for some years after, saw the lake called by his name. The successful laying of the Atlantic cable, in 1866, put a stop to this project, and the exploring parties sent out were recalled as soon as word could be got to them. It seems that Labarge had got up as far as the Pelly before he received his recall; he had heard something of a large lake some distance farther up the river, and afterward

spoke of it to some traders and miners, who called it after him.

"After leaving Lake Labarge, the river, for a distance of about five miles, preserves a generally uniform width and an easy current of about four miles per hour. It then makes a short turn round a low gravel point, and flows in exactly the opposite of its general course for a mile, when it again turns sharply to its general direction. The current around this curve and for some distance below it—in all, four or five miles—is very swift. I timed it in several places, and found it from six to seven miles an hour. It then moderates to four or five, and continues so until the Teslinto River is reached, thirty-one and seven-tenths miles from Lake Labarge. The average width of this part of the river is about 150 yards, and the depth is sufficient to afford passage for boat drawing at least five feet. It is, as a rule, crooked, and consequently a little difficult to navigate.

"The Teslinto* was so called by Dr. Dawson—

*The limited amount of prospecting that has been done on this river is said to be very satisfactory, fine gold having been found in all parts of the river. The lack of supplies is the great drawback to its development, and this will not be overcome to any extent, until by some means heavy freight can be brought over the coast range to the head of the river. Indeed, owing to the difficulties attending access and transportation, the great drawback to the entire

this, according to information obtained by him, being the Indian name. It is called by the miners 'Hootalinkwa,' or Hotalinqua, and was called by Schwatka, who appears to have bestowed no other attention to it, the Newberry, although it is apparently much larger than the Lewes. This is so apparent that in my interim reports I stated it as a fact. Owing to circumstances already narrated, I had not time while at the mouth to make any measurements to determine the relative size of the rivers; but on his way out Dr. Dawson made these measurements, and his report, before referred to, gives the following values of the cross sections of each stream: Lewes, 3,015 feet; Teslintoo, 3,809 feet. In the same connection he states that the Lewes appeared to be about one foot above its lowest summer level, while the Teslintoo appeared to be at its lowest level. Assuming this to be so, and taking his widths as our data, it would reduce his cross section of the Lewes to 2,595 feet. Owing, however, to the current in the Lewes, as determined by Dr. Dawson, being just double that of the Teslintoo,

Yukon district at present is the want of heavy mining machinery and the scarcity of supplies. The government being aware of the requirements and possibilities of the country, has undertaken the task of making preliminary surveys for trails and railroads, and no doubt in the near future the avenue for better and quicker transportation facilities will be opened up.

the figures being 5.68 and 2.88 miles per hour respectively, the discharge of the Lewes, taking these figures again, is 18,644 feet, and of the Teslintoos 11,436 feet. To reduce the Lewes to its lowest level, the doctor says, would make its discharge 15,600 feet.

"The water of the Teslintoos is of a dark brown color, similar in appearance to the Ottawa River water, and a little turbid. Notwithstanding the difference of volume of discharge, the Teslintoos changes completely the character of the river below the junction, and a person coming up the river would, at the forks, unhesitatingly pronounce the Teslintoos the main stream. The water of the Lewes is blue in color, and at the time I speak of was somewhat dirty—not enough so, however, to prevent one seeing to a depth of two or three feet.

"At the junction of the Lewes and Teslintoos I met two or three families of the Indians who hunt in the vicinity. One of them could speak a little Chinook. As I had two men with me who understood his jargon perfectly, with their assistance, I tried to get some information from him about the river. He told me the river was easy to ascend, and presented the same appearance eight days' journey up as at the mouth; then a lake

was reached, which took one day to cross; the river was then followed again for half a day to another lake, which took two days to traverse; into this lake emptied a stream which they used as a highway to the coast, passing by way of the Taku River. He said it took four days when they had loads to carry, from the head of canoe navigation on the Teslintoo to salt water on the Taku Inlet; but when they come light, they took only one to two days. He spoke also of a stream entering the large lake from the east which came from a distance; but they did not seem to know much about it, and considered it outside their country. If their time intervals are approximately accurate, they mean that there are about 200 miles of good river to the first lake, as they ought easily to make twenty-five miles a day on the river as I saw it. The lake takes one day to traverse, and is at least twenty-five miles long, followed by, say, twelve of river, which brings us to the large lake, which takes two days to cross, say fifty or sixty more—in all, about 292 miles—say 300—to the head of canoe navigation; while the distance from the head of Lake Bennet to the junction is only 188. Assuming the course of the Teslintoo to be nearly south (it is a little to the east of it), and throwing out

every fourth mile for bends, the remainder gives us in arc three degrees and a quarter of latitude, which, deducted from 61 degrees 40 minutes, the latitude of the junction, gives us 58 degrees 25 minutes, or nearly the latitude of Juneau.

"To make sure that I understood the Indian aright, and that he knew what he was speaking about, I got him to sketch the river and lake, as he described them on the sand, and to repeat the same several times.

"I afterward met Mr. T. Boswell, his brother, and another miner, who had spent most of the summer on the river prospecting, and from them I gathered the following: The distance to the first, and only lake which they saw, they put at 175 miles, and the lake itself they call at least 150 miles long, as it took them four days to row in a light boat from end to end. The portage to the sea they did not appear to know anything about, but describe a large bay on the east side of the lake, into which a river of considerable size entered. This river occupies a wide valley, surrounded by high mountains. They thought this river must head near Liard River. This account differs materially from that given by the Indian, and to put them on their guard, I told them what he had told me, but

they still persisted in their story, which, I find, differs a good deal from the account which they gave Dr. Dawson, as incorporated in his report.

"Many years ago (sixteen, I think) a man named Monroe prospected up the Taku and learned from the Indians something of a large lake not far from that river. He crossed over and found it; and spent some time in prospecting, and then re-crossed to the sea. This man had been at Forty Mile River, and I heard from the miners there his account of the appearance of the lake, which amounted generally to this: 'The Boswells did not know anything about it.' It was unfortunate the Boswells did not remain at Forty Mile all winter, as by a comparison of recollections they might have arrived at some correct conclusion.

"Conflicting as these descriptions are, one thing is certain: This branch, if it has not the greater discharge, is the longer and more important of the two, and offers easy and uninterrupted navigation for more than double the distance which the Lewes does, the cañon being only ninety miles above the mouth of the Teslinto. The Boswells reported it as containing much more useful timber than the Lewes,

which, indeed, one would infer from its lower altitude.

"Assuming this as the main river, and adding its length to the Lewes-Yukon below the junction, gives upward of 2,200 miles of river, fully two-thirds of which runs through a very mountainous country, without an impediment to navigation.

"Some indefinite information was obtained as to the position of this river in the neighborhood of Marsh Lake tending to show that the distance between them was only about thirty or forty miles.

"Between the Teslintoo and the Big Salmon, so-called by the miners, or D'Abbadie by Schwatka, the distance is thirty-three and a half miles, in which the Lewes preserves a generally uniform width and current. For a few miles below the Teslintoo it is a little over the ordinary width, but then contracts to about 200 yards, which it maintains with little variation. The current is generally from four to five miles per hour.

"The Big Salmon I found to be about 100 yards wide near the mouth, the depth not more than four or five feet, and the current, so far as could be seen, sluggish. None of the miners I met could give me any information concerning this stream; but Dr. Dawson was more fortunate, and met a man who had spent most of the

summer of 1887 prospecting on it. His opinion was that it might be navigable for small stern-wheel steamers for many miles. The valley, as seen from the mouth, is wide, and gives one the impression of being occupied by a much more important stream. Looking up it, in the distance could be seen many high peaks covered with snow. As the date was August, it is likely they are always so covered, which would make their probable altitude above the river 5,000 feet or more.

"Dr. Dawson, in his report, incorporates fully the notes obtained from the miners. I will trespass so far on these as to say that they called the distance to a small lake near the head of the river 190 miles from the mouth. This lake was estimated to be four miles in length; another lake about twelve miles above this was estimated to be twenty-four miles long, and its upper end distant only about eight miles from the Teslinto. These distances, if correct, make this river much more important than a casual glance at it would indicate; this, however, will be more fully spoken of under its proper head.

"Just below the Big Salmon the Lewes takes a bend of nearly a right angle. Its course from the junction with the Tahkeena to this

point is generally a little east of north; at this point it turns to nearly west for some distance. Its course between here and its confluence with the Pelly is northwest, and, I may add, it preserves this general direction down to the confluence with the Porcupine. The river also changes in another respect; it is generally wider, and often expands into what might be called lakes, in which are islands. Some of the lakes are of considerable length, and well timbered.

"To determine which channel is the main one—that is, which carries the greatest volume of water, or is best available for the purposes of navigation among these islands—would require more time than I could devote to it on my way down; consequently, I cannot say more than that I have no reason to doubt that a channel giving six feet or more of water could easily be found. Whenever, in the main channel, I had reason to think the water shallow, I tried it with my paddle, but always failed to find bottom, which gives upward of six feet. Of course I often found less than this, but not in what I considered the main channel.

"Thirty-six and a quarter miles below the Big Salmon, the Little Salmon—the Daly of Schwatka—enters the Lewes. This river is

about sixty yards wide at the mouth, and not more than two or three feet in depth. The water is clear and of a brownish hue; there is not much current at the mouth, nor as far as can be seen up the stream. The valley, which from the mouth does not appear extensive, bears northeast for some distance, when it appears to turn more to the east. Six or seven miles up, and apparently on the north side, some high cliffs of red rock, apparently granite, can be seen. It is said that some miners have prospected this stream, but I could learn nothing definite about it.

"Lewes River makes a turn here to the southwest, and runs in that direction six miles, when it again turns to the northwest for seven miles, and then makes a short, sharp turn to the south and west around a low sandy point, which will, at some day in the near future, be cut through by the current, which will shorten the river three or four miles.

"Eight miles below Little Salmon River a large rock called the Eagle's Nest, stands up in a gravel slope on the easterly bank of the river. It rises about 500 feet above the river, and is composed of a light gray stone. What the character of this rock is I could not observe, as

I saw it only from the river, which is about a quarter of a mile distant. On the westerly side of the river there are two or three other isolated masses of apparently the same kind of rock. One of them might appropriately be called a mountain; it is southwest from the Eagle's Nest and distant from it about three miles.

"Thirty-two miles below Eagle's Nest Rock, Nordenskiöld River enters from the west. It is an unimportant stream, being not more than 120 feet wide at the mouth, and only a few inches deep. The valley, as far as can be seen, is not extensive, and, being very crooked, it is hard to tell what its general direction is.

"The Lewes, between the Little Salmon and the Nordenskiöld, maintains a width of from two to three hundred yards, with an occasional expansion where there are islands. It is serpentine in its course most of the way, and where the Nordenskiöld joins it is very crooked, running several times under a hill, named by Schwatka, Tantalus Butte, and in other places leaving it, for a distance of eight miles. The distance across from point to point is only half a mile.

"Below this to Five Finger Rapids, so called from the fact that five large masses of rock

stand in mid-channel, the river assumes its ordinary straightness and width, with a current from four to five miles per hour. I have already described Five Finger Rapids; I do not think they will prove anything more than a slight obstruction in the navigation of the river. A boat of ordinary power would probably have to help herself up with windlass and line in high water.

"Below the rapids for about two miles, the current is strong—probably six miles per hour—but the water seems to be deep enough for any boat that is likely to navigate it.

"Six miles below this, as already noticed, Rink Rapids are situated. They are of no great importance, the westerly half of the stream only being obstructed. The easterly half is not in any way affected, the current being smooth and the water deep.

"Below Five Finger Rapids about two miles a small stream enters from the east. It is called by Dr. Dawson Tatshun River. It is not more than thirty or forty feet wide at the mouth, and contains only a little clear, brownish water.

"Between Five Finger Rapids and Pelly River, fifty-eight and a half miles, no streams of any importance enter the Lewes; in fact, with the

exception of the Tatshun, it may be said that none at all enter.

"About a mile below Rink Rapids the river spreads out into a lake-like expanse, with many islands; this continues for about three miles, when it contracts to something like the usual width; but bars and small islands are very numerous all the way to Pelly River. About five miles above Pelly River there is another lake-like expanse filled with islands. The river here for three or four miles is nearly a mile wide, and so numerous and close are the islands that it is impossible to tell when floating among them where the shores of the river are. The current, too, is swift, leading one to suppose the water shallow; but I think even here a channel deep enough for such boats as will navigate this part of the river can be found. Schwatka named this group of islands 'Ingersoll Islands.'

"At the mouth of the Pelly the Lewes is about half a mile wide, and here, too, are many islands, but not in groups as at Ingersoll Islands.

"About a mile above the Pelly, just at the ruins of Fort Selkirk, the Yukon was found to be 565 yards wide; about two-thirds being ten feet deep, with a current of about four and three-quarters miles per hour; the remaining third

was more than half taken up by a bar, and the current between it and the south shore was very slack.

"Pelly River at its mouth is about 200 yards wide, and continues this width as far up as could be seen. Dr. Dawson made a survey and examination of this river, which will be found in his report, already cited, 'Yukon District and Northern British Columbia.'

"Just here for a short distance the course of the Yukon is nearly west, and on the south side, about a mile below the mouth of the Lewes, stands all that remains of the only trading post ever built by white men in the district.

"Under present conditions, the Hudson's Bay Company cannot very well compete with the Alaska Commercial Company, whose agents do the only trade in the district*, and they appear to have abandoned—for the present at least—all attempt to do any trade nearer to it than Rampart House, to which point, notwithstanding the distance and difficulties in the way, many of the Indians on the Yukon make a trip every two or three years to procure goods in exchange for

*Since the date of this report the North American Transportation and Trading Company, better known in the Yukon Valley as "Captain Healy's Company," has established a number of posts on the river.

their furs. The clothing and blankets brought in by the Hudson's Bay Company, they claim, are much better than those traded on their own river by the Americans. Those of them that I saw who had any English blankets exhibited them with pride, and exclaimed 'good.' They point to an American blanket in contempt, with the remark, 'no good,' and speak of their clothing in the same way.

"On many maps of Alaska a place named 'Reed's House' is shown on or near the upper waters of Stewart River. I made inquiries of all whom I thought likely to know anything concerning this post, but failed to elicit any information showing that there ever had been such a place. I inquired of Mr. Reid, who was in the company's service with Mr. Campbell at Fort Selkirk, and after whom I thought, possibly, the place had been called, but he told me he knew of no such post, but that there was a small lake at some distance in a northerly direction from Fort Selkirk where fish were procured. A sort of shelter had been made at that point for the fishermen, and a few furs might have been obtained there, but it was never regarded as a trading post.

"Below Fort Selkirk the Yukon River is from

500 to 600 yards broad, and maintains this width down to White River, a distance of ninety-six miles. Islands are numerous, so much so that there are very few parts of the river where there are not one or more in sight. Many of them are of considerable size, and nearly all are well timbered. Bars are also numerous, but almost all are composed of gravel, so that navigators will not have to complain of shifting sand bars. The current, as a general thing, is not so rapid as in the upper part of the river, averaging about four miles per hour. The depth in the main channel was always found to be more than six feet.

"From Pelly River to within twelve miles of White River the general course of the river is a little north of west; it then turns to the north, and the general course as far as the site of Fort Reliance is due north.

"White River enters the main river from the west. At the mouth it is about 200 yards wide, but a great part of it is filled with ever-shifting sand bars, the main volume of water being confined to a channel not more than 100 yards in width. The current is very strong, certainly not less than eight miles per hour. The color of

the water bears witness to this, as it is much the muddiest that I have ever seen.*

"I had intended to make a survey of part of this river as far as the International Boundary, and attempted to do so; but, after trying for over half a day, I found it would be a task of much labor and time, altogether out of proportion to the importance of the end sought, and therefore abandoned it. The valley, as far as can be seen from the mouth, runs about due west for a distance of eight miles; it then appears to bear to the southwest; it is about two miles wide where it joins the Pelly valley, and apparently keeps the same width as far as it can be seen.

"Mr. Harper, of the firm of Harper, McQuestion & Co., went up this river with sleds in the fall of 1872 a distance of fifty or sixty miles. He describes it as possessing the same general features all the way up, with much clay soil along its banks. Its general course, as sketched by him on a map of mine, is for a distance of about thirty miles a little northwest, thence southwest

*The White River very probably flows over volcanic deposits, as its sediments would indicate; no doubt this would account for the discoloration of its waters. The volcanic ash appears to cover a great extent of the Upper Yukon basin, drained by the Lewes and Pelly rivers. Very full treatment of the subject is given by Dr. Dawson, in his report, entitled "Yukon District and Northern Portion of British Columbia."

thirty or thirty-five miles, when it deflects to the northwest, running along the base of a high mountain ridge. If the courses given are correct, it must rise somewhere near the head of Forty Mile River; and if so, its length is not at all in keeping with the volume of its discharge, when compared with the known length and discharge of other rivers in the territory. Mr. Harper mentioned an extensive flat south of the mountain range spoken of, across which many high mountain peaks could be seen. One of these, he thought, must be Mount St. Elias, as it overtopped all the others; but, as Mount St. Elias is about 180 miles distant, his conclusion is not tenable. From his description of this mountain, it must be more than twice the height of the highest peaks seen anywhere on the lower river, and consequently must be 10,000 or 12,000 feet above the sea. He stated that the current in the river was very swift as far as he ascended and the water muddy. The water from this river, though probably not a fourth of the volume of the Yukon, discolors the water of the latter completely; and a couple of miles below the junction the whole river appears almost as dirty as White River.

"Between White and Stewart rivers, ten miles,

the river spreads out to a mile and upward in width, and is a maze of islands and bars. The survey was carried down the easterly shore, and many of the channels passed through barely afforded water enough to float the canoes. The main channel is along the westerly shore, down which the large boat went, and the crew reported plenty of water.

"Stewart River enters from the east in the middle of a wide valley, with low hills on both sides, rising on the north side in steps or terraces to distant hills of considerable height. The river half a mile or so above the mouth is 200 yards in width. The current is slack and the water shallow and clear, but dark colored.

"While at the mouth I was fortunate enough to meet a miner who had spent the whole of the summer of 1887 on the river and its branches prospecting and exploring. He gave me a good deal of information, of which I give a summary. He is a native of New Brunswick, Alexander McDonald by name, and has spent some years mining in other places, but was very reticent about what he had made or found. Sixty or seventy miles up the Stewart a large creek enters from the south, which he called Rose Bud Creek or River, and thirty or forty miles further

up a considerable stream flows from the northeast, which appears to be Beaver River, as marked on the maps of that part of the country. From the head of this stream he floated down on a raft, taking five days to do so. He estimated his progress at forty or fifty miles each day, which gives a length of from 200 to 250 miles. This is probably an over-estimate, unless the stream is very crooked, which, he stated, was not the case. As much of his time would be taken up in prospecting, I should call thirty miles or less a closer estimate of his progress. This river is from fifty to eighty yards wide, and was never more than four or five feet deep, often being not more than two or three; the current, he said, was not at all swift. Above the mouth of this stream the main river is from 100 to 130 yards wide, with an even current and clear water. Sixty or seventy miles above the last-mentioned branch another large branch joins, which is possibly the main river. At the head of it he found a lake nearly thirty miles long, and averaging a mile and a half in width, which he called Mayhew Lake, after one of the partners in the firm of Harper, McQuestion & Co.

"Thirty miles or so above the forks on the other branch there are falls which McDonald

estimated to be from 100 to 200 feet in height. I met several parties who had seen these falls, and they corroborate this estimate of their height. McDonald went on past the falls to the head of this branch, and found terraced gravel hills to the west and north; he crossed them to the north and found a river flowing northward. On this he embarked on a raft and floated down it for a day or two, thinking it would turn to the west and join the Stewart; but finding it still continued north, and acquiring too much volume to be any of the branches he had seen while passing up the Stewart, he returned to the point of his departure, and after prospecting among the hills around the head of the river, he started westward, crossing a high range of mountains composed principally of shales with many thin seams of what he called quartz, ranging from one to six inches in thickness.

"On the west side of this range he found a river flowing out of what he called Mayhew Lake, and crossing this got to the head of Beaver River, which he descended as before mentioned.

"It is probable the river flowing northward, on which he made a journey and returned, was a branch of Peel River. He described the timber on the gravel terraces of the watershed as

small and open. He was alone in this unknown wilderness all summer, not seeing even any of the natives. There are few men so constituted as to be capable of isolating themselves in such a manner. Judging from all I could learn, it is probable a light-draught steamboat could navigate nearly all of Stewart River and its tributaries.

"From Stewart River to the site of Fort Reliance,* seventy-three and a quarter miles, the Yukon is broad and full of islands. The average width is between a half and three-quarters of a mile, but there are many expansions where it is over a mile in breadth; however, in these places it cannot be said that the waterway is wider than at other parts of the river, the islands being so large and numerous. In this reach no streams of any importance enter.

"About thirteen miles below Stewart River a large valley joins that of the river, but the stream occupying it is only a large creek. This agrees in position with what has been called Sixty Mile Creek, which was supposed to be about that distance above Fort Reliance, but it does not agree with descriptions which I received of it; moreover, as Sixty Mile Creek is known

*This was at one time a trading post occupied by Messrs. Harper & McQuestion.

to be a stream of considerable length, this creek would not answer its description.

"Twenty-two and a half miles from Stewart River another and larger creek enters from the same side; it agrees with the descriptions of Sixty Mile Creek, and I have so marked it on my map. This stream is of no importance, except for what mineral wealth may be found on it.*

*Sixty Mile Creek is about one hundred miles long, very crooked, with a swift current and many rapids, and is, therefore, not easy to ascend.

Miller, Glacier, Gold, Little Gold, and Bedrock creeks are all tributaries of Sixty Mile. Some of the richest discoveries in gold so far made in the interior since 1894 have been upon these creeks; especially has this been the case upon the two first mentioned. There is a claim upon Miller Creek, owned by Joseph Boudreau, from which over \$100,000 worth of gold is said to have been taken out.

Freight for the mines is taken up Forty Mile Creek in summer for a distance of thirty miles, then portaged across to the heads of Miller and Glacier creeks. In the winter it is hauled in by dogs.

The trip from Cudahy to the post at the mouth of Sixty Mile River is made by ascending Forty Mile River a small distance, making a short portage to Sixty Mile River and running down with its swift current. Coming back on the Yukon, nearly the whole of the return trip is made down stream.

Indian Creek enters the Yukon from the east about thirty miles below Sixty Mile. It is reported to be rich in gold, but, owing to the scarcity of supplies, its development has been retarded.

At the mouth of Sixty Mile Creek a townsite of that name is located. It is the headquarters for upward of 100 miners, and where they more or less assemble in the winter months.

Messrs. Harper & Co. have a trading post and a sawmill on an island at the mouth of the creek, both of which are in charge of Mr. J. Leduc, one of the partners of the firm, and who was at one time in the employ of the Alaska Commercial Company.

"Six and a half miles above Fort Reliance the Thron-Diuck* River of the Indians (Deer River of Schwatka) enters from the east. It is a small river, about forty yards wide at the mouth and shallow; the water is clear and transparent, and of beautiful blue color. The Indians catch great numbers of salmon here. They had been fishing shortly before my arrival, and the river, for some distance up, was full of salmon traps.

"A miner had prospected up this river for an estimated distance of forty miles in the season of 1887. I did not see him, but got some of his information at second-hand. The water being so beautifully clear, I thought it must come through a large lake not far up; but as far as he had gone no lakes were seen. He said the current was comparatively slack, with an occasional 'ripple' or small rapid. Where he turned back the river is surrounded by high mountains, which were then covered with snow, which accounts for the purity and clearness of the water.

"It appears that the Indians go up this stream a long distance to hunt, but I could learn

*Dawson City is situated at the mouth of the Thron-Diuck, and although it was located only a few months ago, it is the scene of great activity. Very rich deposits of gold have been lately found on Bonanza Creek and other affluents of the Thron-Diuck.

nothing definite as to their statements concerning it.

"Twelve and a half miles below Fort Reliance the Chandindu River, as named by Schwatka, enters from the east. It is thirty to forty yards wide at the mouth, very shallow, and for half a mile up is one continuous rapid. Its valley is wide and can be seen for a long distance looking northeastward from the mouth.

"Between Fort Reliance and Forty Mile River (called Cone Hill River by Schwatka) the Yukon assumes its normal appearance, having fewer islands and being narrower, averaging four to six hundred yards wide, and the current being more regular. This stretch is forty-six miles long, but was estimated by the traders at forty, from which the Forty Mile River took its name.

"Forty Mile River* joins the main river from the west. Its general course as far up as the International Boundary, a distance of twenty-three miles, is southwest; after this it is reported

*Forty Mile townsite is situated on the south side of the Forty Mile River at its junction with the Yukon. The Alaska Commercial Company has a station here which was for some years in charge of L. N. McQuestion; there are also several blacksmith shops, restaurants, billiard halls, bakeries, an opera house and so on. Rather more than half a mile below Forty Mile townsite the town of Cudahy was founded on the north side of Forty Mile River in the summer of 1892. It is named after a well known member of the North American Transportation and Trading

by the miners to run nearer south. Many of them claim to have ascended this stream for more than one hundred miles, and speak of it there as quite a large river. They say that at that distance it has reached the level of the plateau, and the country adjoining it they describe as flat and swampy, rising very little above the river. It is only a short distance across to the Tanana River—a large tributary of the Yukon—which is here described as an important stream. However, only about twenty-three miles of Forty Mile River are in Canada, and the upper part of it and its relation to other rivers in the district have no direct interest for us.

“Forty Mile River is 100 to 150 yards wide at the mouth, and the current is generally strong, with many small rapids. Eight miles up is the so-called cañon; it is hardly entitled to that distinctive name, being simply a crooked contraction of the river, with steep, rocky banks, and on the north side there is plenty of room to

Company. In population and extent of business the town bears comparison with its neighbor across the river. The opposition in trade has been the means of very materially reducing the cost of supplies and living. The North American Transportation and Trading Company has erected a sawmill and some large warehouses. Fort Constantine was established here immediately upon the arrival of the Mounted Police detachment in the latter part of July, 1895. It is described further on in an extract from Inspector Constantine's supplementary report for the year 1895.

walk along the beach. At the lower end of the cañon there is a short turn and swift water in which are some large rocks; these cannot generally be seen, and there is much danger of striking them running down in a boat. At this point several miners have been drowned by their boats being upset in collision with these rocks. It is no great distance to either shore, and one would think an ordinary swimmer would have no difficulty in reaching land; but the coldness of the water soon benumbs a man completely and renders him powerless. In the summer of 1887 an Indian from Tanana, with his family, was coming down to trade at the post at the mouth of Forty Mile River; his canoe struck on these rocks and upset, and he was thrown clear of the canoe, but the woman and children clung to it. In the rough water he lost sight of them, and concluded that they were lost. It is said he deliberately drew his knife and cut his throat, thus perishing, while his family were hauled ashore by some miners. The chief of the band to which this Indian belonged came to the post and demanded pay for his loss, which, he contended, was occasioned by the traders having moved from Belle Isle to Forty Mile, thus causing them to descend this dangerous rapid, and there

is little doubt that had there not been so many white men in the vicinity he would have tried to enforce his demand.

"The length of the so-called cañon is about a mile. Above it the river up to the boundary is generally smooth, with swift current and an occasional ripple. The amount of water discharged by this stream is considerable; but there is no prospect of navigation, it being so swift and broken by small rapids.

"From Forty Mile River to the boundary the Yukon preserves the same general character as between Fort Reliance and Forty Mile, the greatest width being about half a mile and the least about a quarter.

"Fifteen miles below Forty Mile River a large mass of rock stands on the east bank. This was named by Schwatka 'Roquette Rock,' but is known to the traders as Old Woman Rock; a similar mass on the west side of the river being known as Old Man Rock.

"Between Forty Mile River and the boundary line no stream of any size joins the Yukon; in fact, there is only one stream, which some of the miners have named Sheep Creek, but as there is another stream further down the river called by the same name, I have named it Coal Creek. It

is five miles below Forty Mile, and comes in from the east, and is a large creek, but not at all navigable. On it some extensive coal seams were seen, which will be more fully referred to further on.

* * * * *

"At the boundary the river is somewhat contracted, and measures only 1,280 feet across in the winter; but in summer, at ordinary water level, it would be about 100 feet wider. Immediately below the boundary it expands to its usual width, which is about 2,000 feet. The area of the cross-section measured is 22,268 feet, the sectional area of the Teslintoo, as determined by Dr. Dawson and already referred to, is 3,809 feet; that of the Lewes at the Teslintoo, from the same authority, is 3,015 feet. Had the above cross-section been reduced to the level at which the water ordinarily stands during the summer months, instead of to the height at which it stood in the middle of September, when it was almost at its lowest, the sectional area would have been at least 50 per cent more, and at the spring flood level about double the above area.

"It is a difficult matter to determine the actual discharge at the place of the cross-section, owing to the irregularity in the depth and current, the

latter being in the deep channel at the east side, when I tried it in September, approximately 4.8 miles per hour, while on the bar in midstream it was not more than 2.5 miles per hour, and between the bar and the westerly shore there was very little current.

"The river above this for some miles was no better for the purpose of cross-section measurement. At the boundary it is narrow and clear of bars and islands for some miles, but here I did not have an opportunity to determine the rate of the current before the river froze up, and after it froze the drift ice was jammed and piled so high that it would have been an almost endless task to cut holes through it.

"Taking the sectional area of the deep part alone and the rate of the current above stated, and calculating by the approximate formulæ used by Dr. Dawson, as given in Trautwine's Engineer's Pocket-Book, p. 562, the discharge in cubic feet per second is 90,864, or about three times that of the Lewes and Teslintoo together, as determined by Dr. Dawson. The discharge of the rest of the channel would approximate only 14,000 feet—in all, about 105,000 feet. At summer level, with an increased sectional area and current, it would approximate 60 per cent

more, or close to 170,000 feet per second. At high water level it would at least be eight to ten feet deeper, and we can only conjecture what the current would be, but I think it safe to assume at least 80 per cent more discharge, which would give us roughly 300,000 feet per second. For the sake of comparison, I give the discharge of the St. Lawrence and Ottawa rivers, being the mean of the years 1867 to 1882: St. Lawrence, mean, 900,000 feet; Ottawa, at Grenville, mean, 85,000 feet. The point where cross-section was measured is less than seven hundred miles from the head of Lewes River, and from the head of the Teslinto probably eight hundred.

"The current, from the boundary down to the confluence with the Porcupine River, is said to be strong and much the same as that above; from the Porcupine down for a distance of five or six hundred miles it is called medium and the remainder easy.

"On the 22d September a small steamboat named the 'New Racket' passed my camp on her way up to Forty Mile River with supplies; she was about forty feet long and nine or ten feet beam, with about two feet draught. The boat was wholly taken up with engine and boiler, the berths for the crew being over the engine-room.

The propelling power was a stern wheel, driven by two engines of large size for such a small boat. It was claimed for her by her captain, A. Mayhew, of the firm of Harper, McQuestion & Co., that she could make ten miles an hour in dead water. She was then twenty-two days out from St. Michael Island, near the mouth of the river. Mr. Mayhew claimed that this was longer than usual, on account of the boiler tubes being out of order and leaking badly, so that it was impossible to keep more than fifty pounds pressure, while that generally used was about double. That this was true was apparent from the fact that it took her about five hours to make four miles, and at one place below my camp she hung for over an hour without making any progress at all, nor could she pass that point until she stopped and bottled up steam.

"After reaching Forty Mile River this boat started up the stream to Stewart River, with supplies for the few miners who intended to winter there and materials for the Indian fur trade. Some miners who intended to spend the summer of 1888 mining on Stewart River took passage up on her; but after trying for nearly two days it was found impossible, loaded as she was, to make any headway, so she returned, discharged her

passengers, and finally reached Stewart River light. Here her owners intended to lay her up and give her a thorough overhauling before the commencement of next season's navigation. Three other steamboats which navigate the river, the 'Yukon,' the 'St. Michael,' and the 'Explorer,' belong to the Alaska Commercial Company. These boats are small, and carry little or no freight themselves, but tow loaded barges. Their space is entirely devoted to engine and boiler, and they are driven by a stern wheel. Messrs. Harper, McQuestion & Co. expected the Alaska Commercial Company to put a larger boat on the river in the season of 1888, one that would carry 120 to 200 tons of freight and make five to seven miles per hour up stream on the upper river. The other boats do not make more than three or four miles per hour, and often not that. None of these boats had passed Stewart River while I was there, nor is it probable they have since done so.

"From Stewart River to the mouth of the Yukon is about 1,650 miles, and the only difficult place in all this distance is the part near the confluence with the Porcupine, which has evidently been a lake in past ages, but is now filled with islands; it is said that the current

here is swift, and the channels generally narrow, rendering navigation difficult."

LATER REPORTS FROM MR. OGILVIE.

"CUDAHY, 4th September, 1895.

"I arrived here the evening of the 30th ultimo, after a tedious journey through much bad weather, which delayed me fully ten days. I leave for the boundary in a day, and will commence marking it at once. With reference to the applications for land at Selkirk, I may say I have not seen the applicants as yet, as they are away. It appears to me, however, from what I have learned, that the best policy is to sell the applicants the land they ask for. They have all occupied and cultivated part of it for several years, raising in their gardens such roots and vegetables as the climate will permit, on which I will report more fully later on. There is no great prospect of any town of importance ever being either at Cudahy or Forty Mile. There are many mining camps now in the country, and, besides, the miners find it pays well to what they call 'drift,' that is, quarry out the frozen gravel during the winter, pile it up, and wash it during the spring and summer. This keeps scores of men on their claims all winter, so that there is not that demand for town residences during the

winter that existed formerly, and consequently town lots are at somewhat of a discount. Coarse gold and excellent prospects have been found on the Hootalinqua (Teslin), and there will likely be a rush there next spring. I will report more fully on that in the future."

"CUDAHY, 8th January, 1896.

"I have the honor to transmit the following interim report of my operations since I came into this territory:

"I have already sent out a short report from this place, being fortunate enough to catch a boat here when I came down. In that report I made some remarks on the townsites in our territory; since then I have learned nothing of importance in that connection, the most noteworthy fact being that gold-bearing quartz has been found in Cone Hill, which stands midway in the valley of the Forty Mile River, a couple of miles above the junction with the Yukon. The quantity in sight rivals that of the Treadwell mine on the coast, and the quality is better, so much so that it is thought it will pay well to work it even under the conditions existing here. Application has been made to purchase it, and an expert is now engaged in putting in a tunnel to test the extent. Indications

in sight point to the conclusion that the whole hill is composed of this metalliferous rock. If the test corroborates this, a stamp mill will be erected next season, which will have an important bearing on the future of this country. If this venture succeeds (as it doubtless will, for it is in the hands of parties who are able to push it), it will give permanent employment to a good many men, who, with their families, will form quite a community.

"Apart from this I cannot see very much of a chance for speculation in buying or selling town sites, and my opinion is confirmed by the present condition of Forty Mile, which now contains very few people, the great majority of the miners remaining on their claims all winter, coming in only once or twice for supplies. Even in the case of the mine at Cone Hill being worked, only a village would be formed around it.

"Outside of all such considerations, the present applicants for Forty Mile and Cudahy town sites have either directly or indirectly occupied the present sites for years and spent thousands of dollars improving and building on them. One house erected in Forty Mile last summer is said to have cost \$10,000. It would cost between \$2,000 and \$3,000 in Ottawa. These improve-

ments cover so much ground that, even if it were decided to lay out the town site and convey it in lots, the applicants would have a claim to most of the ground they ask for.

* * * * *

"A couple of coal claims have been staked and applied for, which I will survey in the spring, and at the same time make an examination of the coal area where they are. I may anticipate this to a certain extent by saying that a few days after I reported to you last fall I went up Coal Creek to search for this coal, to which I referred in my report of 1887 and 1888. I found it about seven miles up the creek, overlying a coarse sandstone and under drift clay and gravel.

"The seam is twelve feet six inches thick. It seems to me to be a good quality of lignite. I have packed thirty or forty pounds of the best specimens I found a few feet in, and will send them out to you in the spring, that a test may be made. That exposure has now been staked and applied for to the agent here. I judge from the position of these coal claims that we have quite an area of coal here. Both exposures furnish, as far as external features show, the same character of coal, and are about the same level, so that it is fair to assume they are in the same seam. I will

make a search in the intervening distance to determine this when I make a survey of the claims. Coal is reported in the drift on the Chandindu, about thirty miles up the river from here, which would go to show that there is another area or a continuation of this one there.

"On my way down the river I saw the copper-bearing vein near Thron-Diuck Creek above Fort Reliance. It does not appear to be extensive, but there are several small veins in the vicinity, and it may be that a commercially valuable deposit may be found. About twenty-five miles farther down I found a small vein, which indicates that this copper deposit is extensive.

"I found a small seam of rather poor asbestos a short distance from Cudahy, and as there is quite an extensive area of serpentine around here, asbestos may yet be found of commercial value.

"Very rich placer diggings are now being worked on the creeks flowing into Sixty Mile, part of which are supposed to be in Canada. I shall be able to say definitely, when I produce the line that far, where they are and how much we have of them.

"Except in the vicinity of Forty Mile, there appears to be nothing doing in the way of quartz prospecting.

"Last season good placer mines were found on the Hootalinqua—Teslin of Dawson—with coarse gold in them, and there will probably be a lot of claims worked there next season. Several miners were wintering there to commence operations early in the spring. A great deal of improvement has been introduced in the working of placer diggings, which has much increased the output. The miner, instead of putting in the winter months in the towns and saloons, remains on his claim all winter, cutting wood in the earlier months, with which he builds fires and thaws the frozen gravel, piling it up to be washed as soon as the flow of water in the spring will permit. In this way the work is more than doubled, but as the supply of wood is very limited, except on the main river, this cannot always be done.

"The police have so far made a very favorable impression, and the general policy of the government in connection with this district is admired.

"The merchants are well satisfied with the establishment of a court of justice, and look for the early addition of some sort of a court of record where transfers and claims can be recorded, so that the collection of debts can be undertaken with some degree of certainty. As it is, A transfers to B, who keeps the record as long as it pays

him to do so; but if he is dishonest and A is absent or dishonest, too, he may destroy it, and repudiate payment of his debts. This has occurred already, and as a good deal of transferring and counter transferring is indulged in, it may occur more frequently in the future unless some court of record is created.

"It is probable that the boundaries of the police jurisdiction may have to be extended in the near future, for a good deal of trading is done on the head waters of the river by parties who cross the summit of the coast passes with goods from Juneau. Also the miners on the head waters and on the Hootalinqua bring in their supplies from Juneau. Now, one of the traders here—Harper—has a small steamboat named the 'Beaver,' which he got in last season for the express purpose of reaching the upper parts of the river and its affluents with supplies, and, having paid duty on all his foreign goods, expects to be protected against smuggled goods. Should the Hootalinqua turn out as expected and promised, a police force will be required there. Harper will try hard to get up with supplies to it and Teslin Lake. I fancy he can lay down most things there as cheaply as they can be brought over the pass. It cost \$14 to \$15—sometimes more—per 100 pounds

to transport from Tiaya to the lakes, which makes flour cost \$16 to \$17 per 100 at the lake, while it costs or is sold here for \$8. Things here are sold so low now that, were I ever coming in from the Pacific again I would bring nothing in quantity but bacon, on which I might save a dollar or two a hundred, it being sold here for \$30 to \$35 per 100. 'I have produced the boundary line about five miles north of where it crosses the Yukon River, which is as far as I thought needful at present. I have also produced it about seven miles south, and about the end of February will resume work and run it as far as Sixty Mile River. In connection with this I have occupied six photograph stations and developed all the plates exposed which have turned out satisfactorily. I have made a cross-section measurement of the Yukon River where the boundary crosses it'.

* * * * *

"In the vicinity of the river I have opened out a wide line in the woods, which will remain visible for several years, but I erected nothing permanent on it.

* * * * *

"Up to date the lowest temperature has been 63 degrees below zero. The winter has been unusually windy. Coming up here we had to face a strong

wind when 52 degrees below zero, and frozen faces and noses were the rule of the day.

"No mail from outside since September."

"CUDAHY, 10th June, 1896.

"After my return there was some fine, clear weather in January, but it was exceedingly cold, more than 60 degrees below zero, one night 68.5, and as I had both my ears pretty badly frozen and could not go out in such cold without having them covered, so that I could not hear the chronometer beat, I could not observe until the end of the month, when we had two fine nights—29th and 30th—mild enough for me to work.

"As there were no important creeks between the Yukon and Forty Mile Rivers, I did not cut the line out continuously, but left it so that any one wishing to can place himself on or very near to the line. The distance from the Yukon to Forty Mile River is a little over twenty-five miles. In the valleys along the line the timber was thick, with much underbrush; but very little of it of much value. Curiously enough, the line kept generally in the valleys or on the sides of them, and there was very little of it in the open. Going from point to point we had to follow as much as possible the hill tops and ridges. I reached Forty

Mile River with this survey on the 13th March. From this point southward there are many streams cut by the line, all of which are more or less gold-bearing and all have been more or less prospected. This necessitated my cutting the line out continuously from Forty Mile River onward, which increased our work very much. The valleys traversed are generally upward of 1,000 feet deep and often very steep, so that the work was exceedingly laborious.

"Transporting our outfit from camp to camp was often a very hard task, as the hills were so steep everything had to be packed up them, which in the deep, soft snow was anything but easy. I reached a point within two miles of Sixty Mile River on the 14th April, and as I had passed all the creeks of any note, and many of them were already running water and our way lay down them, I thought it well to quit work on the line and return to Forty Mile and Cudahy and attend to the local surveys there. The weather was fine and warm, and so much water ran in the creeks by which we had to return that we could only travel a few hours in the early morning and forenoon. Had the season been more favorable I would have visited Glacier and Miller creeks, which were generally supposed to

be in Alaska, but are found to run in Canada for some distance. They are the two richest creeks yet found on the Yukon, and are both tributaries of Sixty Mile River. Both creeks are fully located and worked, each claim being 500 feet along the creek and the width of the valley or creek bed. There are nearly 100 claims, all of which pay well. One on Miller Creek, I understand, will yield \$70,000 to \$80,000 this season, and the owner will net, it is said, between \$40,000 and \$50,000. He took out, it is reported, nearly half that sum last year off the same claim, and expects to do equally well next year. This is much the richest claim yet found, but all on these creeks do well. There are many other creeks in this vicinity yet to be prospected, and some will, I have no doubt, pay well. Gold is found all along the valley of the Sixty Mile River, and under more favorable conditions, both mercantile and climatic, it would yield good results to large enterprises. The mercantile conditions will improve; the climate is a serious difficulty, but will be surmounted in time, I believe. Along the last ten or twelve miles of the line I ran the mountains consist principally of quartz and schists, which no doubt originally held the gold found in the valleys and doubtless hold

some yet. Several men have taken to quartz prospecting, and from indications which I will dwell on later I believe we are on the eve of some magnificent discoveries.

"The miners on all the creeks referred to have quietly accepted my line as the boundary *pro tem.*, and as far as I can learn at present the general feeling is satisfaction that one can now know where he is. Even if the line is not final, no one doubts its being very near the final position. As far as run it is marked by cairns of stones wherever it was possible to procure them with reasonable time and labor, and is cut through the woods and blazed, so that no one who wants to find it can mistake it. Another source of satisfaction to all is that they now know distances and directions. Many miners remark to me: 'We now know how we are going, we can see where south is.' In this high latitude in the summer months it is impossible to tell when the sun is near the meridian because its change in altitude is so little for eight or nine hours, consequently any point between east and west was called somewhere near south. This helps to explain much of the variance in the direction of points as given by miners and others who have no compass or

are unacquainted with the use of one and the application of the declination.

"Some sort of registration office is now and will be still more needed in the country.

"Another inconvenience is the want of a trade medium; there is very little coin, nearly all business being transacted in gold dust, which passes current at \$17 per ounce troy,* but, as most of it will not assay that, there is some hardship to those taking it out, though there may be no actual loss. If enough money were sent in to pay the Northwest mounted police for some time it would help for a period at least, and would emphasize the existence of Canada. What coin and bills are here are largely American.

"Another important question is the treatment of the liquor business, which cannot be ignored much longer. There are several saloons in Forty Mile and one in Cudahy, yet there is no law recognizing them nor regulating them in any way. It would be almost impossible and very unpopular were any attempt made to close them.

*The net value of the gold received by the department was found to be only \$16.50 per ounce, 9 cents of which were silver. Deducting freight, insurance, mint charges and bank commission, the amount realized is reduced to \$15.77. Inspector Constantine, N. W. M. P., quotes assays by the United States office at Helena, Mont., of gold from eight creeks, ranging from \$14.46 for the Upper Lewes to \$17.33 for Davis Creek. The average is \$16.12.

Liquor could not be kept out of the country if the whole Northwest mounted police were scattered around the river.

"Another subject which I have mentioned before is that of the timber. Large quantities of timber are being and have been cut in our territory, and floated down the river to American territory, where it is used, and Canada derives no benefit. Were it used to develop our country it would matter less; in fact, I would encourage such use; but to see the best of our timber taken out without any sort of benefit to the country is, I think, worthy of some sort of attention. There is very little useful timber in the country, and much of what does exist is cut into fuel, while more of it goes beyond the boundary. In the near future we shall feel the want of it. I have spoken to the agent about it, but he has no authority to act, and, if he had, is disinclined to run up and down the river looking after it unless he has a steamer.

"Some sort of a court for the collection of debts is required here now, and whether or not the agent could act in that capacity is a question to be decided.

"The merchants here who pay duty are naturally dissatisfied at the smuggling done on the

upper river and ask for some sort of protection. It might be advisable to have a squad of police and an officer somewhere on the lake to look after that. I am thoroughly convinced that a road from the coast to some point on the head waters of the river, preferably by the Taku, if at all practicable, would convert all our part of the river into a hive of industry. It may be said there is no competition, and anyway, in the present conditions of trade, things cannot be sold very much cheaper at a fair profit. Once let a railroad get from some point on the coast to some point on the river so that we can have cheap, quick, and certain entrance and exit, and the whole Yukon basin will be worked. At present the long haul makes the expense of mining machinery practically prohibitive, for the cost of transport is often more than the first cost of the machine.

"Assays of the Cone Hill quartz are very satisfactory, and the quantity good for generations of work; were it on the coast, the Treadwell mine would be diminutive beside it. Five tons of rock are being sent out from it for a mill test, and should they prove satisfactory, as the test of a ton sent out last year, I understand the parties owning it will proceed to develop it. If it starts

and proves reasonably successful, there are scores of other places in the country that may yield as well. An expert here who prospects for the N. A. T. & T. Co. found a ledge last spring on the Chandindu River of Schwatka (known as Twelve Mile Creek here) and located two full claims on it. He told me the assay he made of my specimens of it was much more satisfactory than that of Cone Hill, and this ledge, he claims, is where a commencement should be made in quartz milling in this country, and there would be no fear of the result. He appears to be pretty well versed in mining lore, is a practical assayer—that is his profession—and says he never saw or read of anything like it for extent in the world. He informed me there were extensive deposits of coal about twenty miles up the creek, and this ledge was about four miles up. He has no doubt but that the copper around Fort Reliance will, with better facilities, yet be a valuable feature of the country. He showed me a lump of native copper some Indians said they found on the head of White River, but could not or would not specify where. Speaking of White River reminds me that it and Sixty Mile are very close together in the vicinity of the boundary. I was told it was only a short walk from the creeks of

one to the creeks of the other, but how far from stream to stream is uncertain.

"This expert is an American who has spent many years of his life in the best mining districts in the United States, and he assures me this country promises better than any he ever saw before, and as an evidence of his satisfaction with it he is going to spend the rest of his life here.

"Great anxiety is felt here about a mail route and regular mail. Last winter three mails left the coast, one by the Taku route, one by the White pass, and one via Taiya; the first two got here in good time, the last (ours, by the way) did not, nor is it likely to arrive for some time—maybe never. The man in charge was badly frozen on the summit, and had to turn back, leaving the mail behind him, and it is now probably buried in fathoms of snow. An Indian brought the mail in by the Taku and took the Slocan branch of it to Atlin Lake. From what I learned of this route, while up there it may be found to afford an easier way than by Teslin Lake, but it has the disadvantage of landing on the head of the Lewes instead of the Hootalinqua or Teslin, and so takes in the cañon and White Horse Rapids.

"Last winter many of the residents and miners

here talked to me about the mails and what the government intended in that direction; of course I could tell them nothing. They made their views known by getting up a petition to the Minister of the Interior.

"The Alaska Commercial Company are putting a new and powerful steamer on the river, which will make four—the 'Arctic,' 'Alice,' and 'Emma,' large, and the 'Bedon,' small. There is some talk of the N. A. T. & T. Co. putting on a sister boat to the 'Portus B. Weare.' All are stern-wheel boats.*

"From my camera stations on the boundary I saw many high mountains, some of them not less than 8,000 feet, and some I believe 10,000. Some of the prominent ones I have named after the pioneers of the country, notably one, Mount Campbell, after the late Mr. Robert Campbell, of the Hudson Bay Company, who established Fort Selkirk. It is about sixty miles due east of here, and is a noteworthy peak in that it stands on top of an extensive, well defined range, rising like a lofty pillar about 1,000 feet above the ridge. It is, as far as seen, the most remarkable peak in

*The estimates submitted at the last session of Parliament contain an item of \$5,000 for the purchase of a steamer for the use of the Mounted Police in the Yukon District.

the country. I have not made any computations yet, but I do not think its summit is much, if any, less than 10,000 feet above the sea. No one noticed it before, for the reason that it is only about 600 feet wide, is always black, and very distant from points where it can be seen around here."

* * * * *

"CUDAHY, June 25, 1896.

"Horses could be laid down here for, I would say, about \$250 per head, and the same animals ought to last the whole survey. Horses that have been in use here, packing to the mines in the summer and hauling wood in the winter, for several years are still serviceable, notwithstanding that they live only on the coarse grasses of the country. They pack 200 pounds apiece from Forty Mile River at the mouth of Moore Creek to the mines on Miller Creek (about seventeen and a half or eighteen miles), and climb some very steep, long hills on the way, taking two days with loads and one day without; all they get to eat is what they find.

* * * * *

"My last report told you of the agent here going to Miller and Glacier creeks and collecting fees and making entries; as he did not go west of those

creeks, no complications will arise, for, as you will see by my sketch map, they are within Canada. I may say here that one claim on Miller Creek turned out about \$70,000 last winter, and several others have done very well, too. So far nearly all the miners have passed here, going to Circle City (about 200 miles down), and I have no doubt many of them will keep on going.

"About 100 miners are reported on the Hootalinqua this summer. We shall probably soon have to extend law and order there.

"Many here make gardens, using any seed they can get, and some are going to try grasses for fodder. I would suggest the director of the Central Experimental Farm be asked to send in seeds of the kinds of ordinary vegetables and grasses best suited to such a climate as this, to be distributed by the agent here to those who will make a proper use of them, or for sale at cost. I am quite sure it would be of much service, and if some hints on the proper care of plants were sent in it would be more so, as most of the people in here know practically nothing of gardening or farming. Besides, it would improve the feeling among the people here toward our country and institutions, and would cost the country practically nothing."

"CUDAHY, August 18, 1896.

* * * * *

"It is now certain that coal extends along the valley of the Yukon from Coal Creek for ten or twelve miles down, and from Coal Creek up to Twelve Mile Creek, which flows into the Yukon about thirty miles above here. The latter stretch is cut off from the river by several miles of hills, as it is about six miles direct from the river at Coal Creek and about eighteen on Twelve Mile Creek. This is the stream named Chandindu by Schwatka. There is a seam on it about six feet thick, as reported by an expert who went in search of it. I found drift coal on the south branch of Coal Creek.

"On the Cornell claim on Cliff Creek the seam is five feet four inches thick. I have sent specimens of it out. I found it necessary to refer to the different creeks, so had to name them 'Shell Creek,' because I found a stone with a shell impression at its mouth; 'Cliff Creek,' because it enters the river at the foot of a high cliff, and 'Flat Creek,' because it enters the river in a large flat.

"Glacier Creek is turning out very well, and several good creeks have been discovered up Forty Mile in Alaska."

"CUDAHY, 6th September, 1896.

"I am very much pleased to be able to inform you that a most important discovery of gold has been made on a creek called Bonanza Creek, an affluent of the river known here as the Klondike.* It is marked on the maps extant as Deer River, and joins the Yukon a few miles above the site of Fort Reliance.

"The discovery was made by G. W. Cormack, who worked with me in 1887 on the coast range. The indications are that it is very rich, indeed the richest yet found, and as far as work has been carried on it realizes expectations. It is only two weeks since it was known, and already about 200 claims have been staked on it, and the creek is not yet exhausted; it and its branches are considered good for 300 or 400 claims. Besides there are two other creeks above it which, it is confidently expected, will yield good pay, and if they do so we have from 800 to 1,000 claims on this river which will require over 2,000 men for their proper working. Between Thron-Diuck River and Stewart River a large creek called Indian Creek flows into the Yukon, and rich prospects have been found on it, and no doubt it is in the gold bearing country between Thron-

*The correct name is Thron Diuck.

Diuck and Stewart rivers, which is considered by all the old miners the best and most extensive gold country yet found. Scores of them would prospect it but for the fact that they cannot get provisions up there, and it is too far to boat them up from here in small boats.

"This new find will necessitate an upward step on the Yukon, and help the Stewart River region.

"News has just arrived from Bonanza Creek that three men worked out \$75 in four hours the other day, and a \$12 nugget has been found, which assures the character of the ground—namely, coarse gold and plenty of it, as three times this can be done with sluice boxes. You can fancy the excitement here. It is claimed that from \$100 to \$500 per day can be made off the ground that has been prospected so far. As we have about 100 claims on Glacier and Miller creeks, with three or four hundred in this vicinity, next year it is imperative that a man be sent in here to look after these claims and all land matters, and it is almost imperative that the agent be a surveyor. Already on Bonanza Creek they are disputing about the size of claims.

"As I have already pretty fully reported on coal, I will only add that it is reported in abundance only eight miles up Chandindu River,

where a seam over six feet thick has been found of the same quality as that already described."

"CUDAHY, November 6, 1896.

"As I have already intimated, rich placer mines of gold were discovered on the branches of this stream (the Thron-Diuck). The discovery, I believe, was due to the reports of Indians. A white man named George W. Cormack, who worked with me in 1887, was the first to take advantage of the rumors and locate a claim on the first branch, which was named by the miners Bonanza Creek. Cormack located late in August, but had to cut logs for the mill here to get a few pounds of provisions to enable him to begin work on his claim. The fishing at Thron-Diuck having totally failed him, he returned with a few weeks' provisions for himself, his wife, and brother-in-law (Indians) and another Indian in the last days of August, and immediately set about working his claim. As he was very short of appliances, he could only put together a rather defective apparatus to wash the gravel with. The gravel itself he had to carry in a box on his back from thirty to one hundred feet; notwithstanding this, the three men, working very irregularly, washed out \$1,200 in eight days, and Cormack asserts, with reason, that had he had proper facilities it

could have been done in two days, besides having several hundred dollars more gold which was lost in the tailings through defective apparatus.

"On the same creek two men rocked out \$75 in about four hours, and it is asserted that two men in the same creek took out \$4,000 in two days with only two lengths of sluice boxes. This last is doubted, but Mr. Leduc assures me he weighed that much gold for them, but is not positive where they got it. They were newcomers, and had not done much in the country, so the probabilities are they got it on Bonanza Creek. A branch of Bonanza Creek named Eldorado has prospected magnificently, and another branch named Tilly Creek has prospected well. In all, there are some four or five branches to Bonanza Creek which have given good prospects. There are about 170 claims staked on the main creek, and the branches are good for about as many more, aggregating, say, 350 claims, which will require over 1,000 men to work properly.

"A few miles farther up Bear Creek enters Thron-Diuck, and it has been prospected and located on. Compared with Bonanza, it is small and will not afford more than twenty or thirty claims, it is said. About twelve miles above the mouth Gold-bottom Creek joins Thron-Diuck,

and on it and a branch named Hunker Creek (after the discoverer) very rich ground has been found. One man showed me \$22.75 he took out in a few hours on Hunker Creek with a gold pan, prospecting his claim on the surface, taking a handful here and there as fancy suggested. On Gold-bottom Creek and branches there will probably be 200 or 300 claims. The Indians have reported another creek much farther up, which they call 'Too Much Gold Creek,' on which the gold is so plentiful that, as the miners say in joke, 'you have to mix gravel with it to sluice it.' Up to date nothing definite has been heard from this creek.

"In my opinion, it is imperative that this business be brought under control at once, or it may develop phases that will be at least annoying in the near future.

"I have in previous reports intimated that some sort of legal machinery is now absolutely necessary for the trial of cases of contract, collection of debts, and generally the judicial interests of the country. There are several cases of hardship now for the want of a proper court.

"If some sort of court to satisfy the necessities of the people in business here is not at once

established serious inconvenience will result. The officer appointed will require to be a hale, vigorous person, for it is probable he will have to make journeys of considerable length across unoccupied country in the discharge of his duty.

"There have been several applications for land in the vicinity of the mouth of the Thron-Diuck, and Inspector Constantine has selected a reserve for government purposes at the confluence of that stream with the Yukon, forty acres in extent.

"A court or office of record in real estate transactions will require to be opened here at once. A recorder was appointed in Forty Mile and a plat made in 1894. In anticipation of my going out this fall, I got a meeting held of the property-owners and had them hand the records over to me for the information of the department. They are in my possession yet, and I will take them out with me when I go. They are rather crude in form and require an initiate to understand them. I act as recorder *pro tem*.

* * * * *

"Before closing I may say that every report that comes in from Bonanza Creek is more encouraging than the last. Prospecting has only begun, and up to date of mailing, November 22d, very rich prospects have been found on the few

claims prospected on; from one dollar to the pan of dirt up to twelve dollars are reported, and no bed rock found yet. This means from \$1,000 to \$12,000 per day per man sluicing.

"The excitement is intense, but at this season of the year it is naturally very local.

"I expect a mail will be starting from here in January, and I will try and send out a short report by it embracing events up to date."

"CUDAHY, 9th December, 1896.

"Since my last the prospects on Bonanza Creek and tributaries are increasing in richness and extent until now it is certain that millions will be taken out of the district in the next few years.

"On some of the claims prospected the pay dirt is of great extent and very rich. One man told me yesterday that he washed out a single pan of dirt on one of the claims on Bonanza and found \$14.25 in it. Of course, that may be an exceptionally rich pan, but \$5 to \$7 per pan is the average on that claim, it is reported, with five feet of pay dirt and the width yet undetermined, but it is known to be thirty feet even at that. Figure the result at nine or ten pans to the cubic foot, and 500 feet long; nearly \$4,000,000 at \$5 per—pan one-fourth of this would be enormous.

"Another claim has been prospected to such an

extent that it is known there is about five feet pay dirt averaging \$2 per pan, and width not less than thirty feet. Enough prospecting has been done to show that there are at least fifteen miles of this extraordinary richness, and the indications are that we will have three or four times that extent, if not all equal to the above, at least very rich.

"It appears a good deal of staking for absentees has been done, some of whom have turned up and some have not. This has caused confusion, and leads to a good deal of what might be called fraud, for it is easy for a few in the inner circle to know what claims have been recorded in accordance with the law and what have not. They can then for themselves directly, or through the intervention of a friend, have the latter jumped for their whole or partial interest. It appears this has been done in several instances.

"I think the department should get large posters printed on which shall be shown the sections of the law governing the location and recording of quartz and placer mines, the extent of each, the duties of miners in both cases, and the rulings of the department on the questions I have submitted, with the penalties attached to offenses against the law. Some of these should

be printed on stout paper or parchment capable of standing exposure to the weather, and posted at every important point in the country so that there may be no excuse hereafter for ignorance.

"A large number of copies of the Mining Act, Land Act, and timber and hay lands regulations should also be sent in.

"As to the extent of mining districts, they should, I think, be made large, and section 21 amended to enable a man who has located a claim which does not pay a reasonable return on outlay the first season after his claim has been prospected, to make a second location in the same locality or district provided he can find one in it. The agent would have to determine whether or not he had expended the proper amount of labor on his claim to get reasonable returns. This, I know, opens the door for a lot of trouble and may be fraud; but, on the other hand, a great many worthy men suffer from the want of some such regulation, and as very few would be in a position to take advantage of such a provision until after their second season, there would hardly be anything left for them to take. Enterprising, industrious men who would work almost continuously might get some benefit—probably would—but no others, so such a regula-

tion could not do very much harm and might help some deserving people. As it is now men stake claims on nearly every new find, some having several claims in the Thron-Diuck locality. They know, I believe, that they will not be able to hold them, but as the localities are not yet clearly defined they can hold on to them for a while, and finally by collusion with others acquire an interest in them.

"The miners here are, I understand, getting up a petition to the Minister asking for aid in opening a way from the south and building along it shelter for winter travelers, with suitable supplies scattered along.

"As it is now a winter's trip out from here is, on account of the long haul and want of shelter, tedious and hazardous, and their representations are worthy of consideration."

"CUDAHY, 11th January, 1897.

"The reports from the Thron-Diuck region are still very encouraging, so much so that all the other creeks around are practically abandoned, especially those on the head of Forty Mile in American territory, and nearly one hundred men have made their way up from Circle City, many of them hauling their sleds themselves. Those

who cannot get claims are buying in on those already located. Men cannot be got to work for love or money, and development is consequently slow; \$1.50 per hour is wages paid the few men who have to work for hire, and work as many hours as they like. Some of the claims are so rich that every night a few pans of dirt suffices to pay the hired help when there is any. As high as \$204 has been reported to a single pan, but this is not generally credited. Claim owners are now very reticent about what they get, so you can hardly credit anything you hear; but one thing is certain, we have one of the richest mining areas ever found, with a fair prospect that we have not yet discovered its limits.

"Miller and Glacier creeks, on the head of Sixty Mile River, which my survey of the 141st meridian determined to be in Canada, were thought to be very rich, but they are poor both in quality and quantity compared with Thron-Diuck.

"Chicken Creek, on the head of Forty Mile, in Alaska, discovered a year ago and rated very high, is to-day practically abandoned.

* * * * *

"Some quartz prospecting has been done in

the Thron-Diuck region, and it is probable that some good veins will be found there. Coal is found on the upper part of Thron-Diuck, so that the facilities for working it if found are good and convenient."

* * * * *

"CUDAHY, 22d January, 1897.

"A quartz lode showing free gold in paying quantities has been located on one of the creeks, but I cannot yet send particulars. I am confident from the nature of the gold found in the creeks that many more of them—and rich, too—will be found."

* * * * *

"CUDAHY, 23d January, 1897.

"I have just heard from a reliable source that the quartz mentioned above is rich, as tested, over \$100 to the ton. The lode appears to run from three to eight feet in thickness, and is about nineteen miles from the Yukon River. I will likely be called on to survey it, and will be able to report fully.

"Placer prospects continue more and more encouraging and extraordinary. It is beyond doubt that three pans on different claims on

Eldorado turned out \$204, \$212, and \$216; but it must be borne in mind that there were only three such pans, though there are many running from \$10 to \$50."

* * * * *

EXTRACT FROM ASSISTANT SURGEON A. E.
WILLS' REPORT FOR 1895.

"It may be of interest to mention something concerning the climate, mode of living of the people generally, and diseases met with.

"The climate is wet. The rainfall last summer was heavy. Although there is almost a continuous sun in summer time, evaporation is very slow, owing to the thick mosses which will not conduct the heat; in consequence the ground is always swampy. It is only after several years of draining that ground will become sufficiently dry to allow the frost to go out, and then only for a few feet. During the winter months the cold is intense, with usually considerable wind.

"A heavy mist rising from open places in the river settles down in the valley in calm, extreme weather. This dampness makes the cold to be felt much more and is conducive to rheumatic pains, colds, etc.

"Miners are a very mixed class of people.

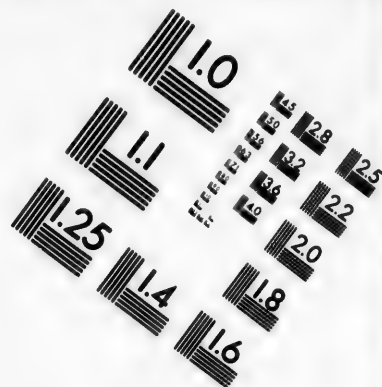
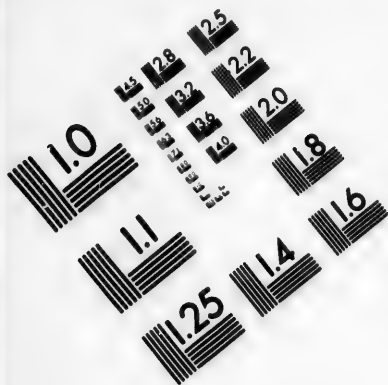
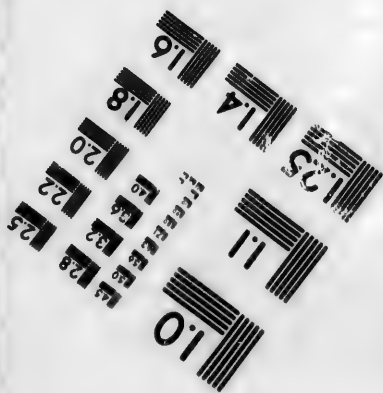
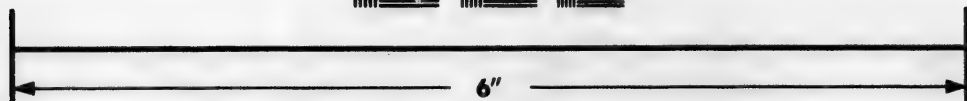
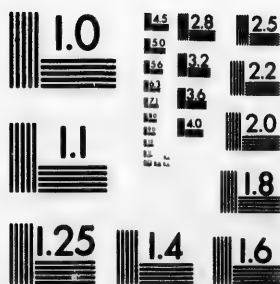


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They represent many nationalities, and come from all climates. Their lives are certainly not enviable. The regulation 'miners' cabin' is twelve feet by fourteen feet, with walls six feet and gables eight feet in height. The roof is heavily earthed, and the cabin is generally very warm. Two, and sometimes three or four, men will occupy a house of this size. The ventilation is usually bad. Those miners who do not work their claims during the winter confine themselves in these small huts most of the time.

"Very often they become indolent and careless, only eating those things which are most easily cooked or prepared. During the busy time, in summer, when they are 'shoveling in,' they work hard and for long hours, sparing little time for eating and much less for cooking.

"This manner of living is quite common among beginners, and soon leads to debility and sometimes to scurvy. Old miners have learned from experience to value health more than gold, and they, therefore, spare no expense in procuring the best and most varied outfit of food that can be obtained.

"In a cold climate such as this, where it is impossible to get fresh vegetables and fruits, it is most important that the best substitutes for these

should be provided. Nature helps to supply these wants by growing cranberries and other wild fruits in abundance, but men in summer are usually too busy to avail themselves of these.

"The diseases met with in this country are dyspepsia, anæmia, scurvy, caused by improperly cooked food, sameness of diet, overwork, want of fresh vegetables, overheated and badly ventilated houses; rheumatism, pneumonia, bronchitis, enteritis, cystitis, and other acute diseases, from exposure to wet and cold; debility and chronic diseases, due to excesses. Venereal diseases are not uncommon. One case of typhoid fever occurred at Forty Mile last fall, probably due to drinking water polluted with decayed vegetable matter.

"In selecting men to relieve in this country I beg to submit a few remarks, some of which will be of assistance to the medical examiners in making their recommendations.

"Men should be sober, strong, and healthy. They should be practical men, able to adapt themselves quickly to their surroundings. Special care should be taken to see that their lungs are sound, that they are free from rheumatism and rheumatic tendency, and that their joints, especially knee joints, are strong, and have never been weakened by injury, synovitis, or other

disease. It is also very important to consider their temperaments. Men should be of cheerful, hopeful dispositions, and willing workers. Those of sullen, morose natures, although they may be good workers, are very apt, as soon as the novelty of the country wears off, to become dissatisfied, pessimistic, and melancholy.

Great Sitkin, A-10.
Green, B-6.
Hagemeister, C-4.
Hall, I-1.
Hassler, C-9.
Hawkin, B-6.
Hazy, C-8.
Hinchinbrook, B-4.
Iglikin, A-10.
Jacob, C-4.
Kadiak, C-4.
Kagalaska, A-10.
Kagami, A-11.
Kalgin, B-5.
Kanaga, A-9.
Kateschuk, C-4.
Kavalga, A-9.
Kayak, C-7.
Khoudiakoff, C-4.
Khoudoubina, C-3.
Kigalgin, A-11.
King, B-4.
Kiska, A-4.
Kinkdank, C-5.
Knights, B-4.
Korovin, C-4.
Kulu, C-9.
Kupreanof, C-4.
Little Diomedes, A-4.
Little Koninual, C-4.
Little Sitkin, A-9.
Marmot, C-4.
Middleton, C-4.
Mitkof, C-9.
Mitrofanua, C-4.
Montagu, C-6.
Nagai, C-4.
Nakchamik, C-4.
Near, A-8.
Nelson, B-3.
North, D-9.
Nunivak, B-3.
Okolnol, C-3.
Otter, C-2.

Simoonof, D-4.
Sitkalidak, C-4.
Sitkinak, C-4.
Sledge, B-2.
South, C-4.
Spruce, C-5.
St. George, C-2.
St. Lawrence, B-1.
St. Matthew, B-1.
St. Michael, B-3.
St. Paul, C-2.
Stephens, D-9.
Stuart, B-3.
Sutwik, C-4.
Tagalakh, A-10.
Tanaga, A-9.
Tigalda, D-3.
Trinity Is., C-5.
Tugidak, C-5.
Ugamok, D-2.
Ulak, A-4.
Ullaga, A-11.
Umga, D-3.
Umnak, A-11.
Unalaska, D-4.
Unavikahak, C-4.
Unga, C-5.
Unimak, D-3.
Ushugak, C-3.
Walrus, C-2.
Wooded Is., C-4.
Woonessenski, C-4.
Wrangell, C-9.
Wrighton, C-9.
Yakobi, C-4.
Yunaska, A-10.
Zalembo, C-3.
Zayas, D-9.

Lakes.

Aleknagik, C-3.
Becharof, C-4.

Black Peak, C-4.
Boundary, A-7.
British, A-7.
Cathul, A-7.
Deviation Peak, A-3.
Devils, A-5.
Four Peaked, C-4.
Franklin, A-8.
Gold, A-5.
Hlamna Peak, B-5.
Jade, A-4.
Kayuh, B-4.
Lionshead, C-9.
Lower Ramparts, A-6.
Maknabin, D-2.
Miles Glacier, B-7.
Mt. Becharof, C-4.
Mt. Bendeleben, A-3.
Mt. Blackburn, B-7.
Mt. Chiginagar, C-4.
Mt. Crillon, C-8.
Mt. Drum, B-6.
Mt. Edgecumbe, C-8.
Mt. Fairweather, C-8.
Mt. Greenough, A-7.
Mt. Hononita, B-4.
Mt. Kelly, A-3.
Mt. Kimball, B-7.
Mt. Lituya, C-8.
Mt. Olai, C-4.
Mt. Sanford, B-7.
Mt. Tillman, B-7.
Mt. Wrangell, B-7.
Mulgrave Hills, A-3.
Palisades, A-5.
Pavloff Volcano, C-3.
Programnia Volcano, D-4.
Rampart, A-5.
Ratzel, A-7.
Red, A-5.
Redoubt Volcano, B-5.
Shishaldin Volcano, C-4.
Snow, A-5.
Sprit, B-7.





Districts, Capes and Points, Islands, Lakes

Districts.		Capes and Points—continued.		Islands—continued.	
First, or Southeastern district.....	8,086	Griffin, A-7.	Capes and Points—continued.	Chowiet, C-5.	Paul, C-4.
Second, or Kadiak district.....	6,113	Gulross, B-6.	Steep, C-5.	Chugach, C-5.	Pinnace, B-1.
Third, or Unalaska district.....	2,351	Hakett, A-5.	Suckling, C-7.	Chuginadak, A-10.	Prinlof, C-2.
Fourth, or Nushagak district.....	2,786	Harbor, C-9.	Tangent, A-8.	Chugot, A-10.	Prince of Wales, C-9.
Fifth, or Kuakwim district.....	5,494	Hinchinbrook, C-5.	Thompson, A-2.	Coronation, C-9.	Punk, B-2.
Sixth, or Yukon district.....	3,913	Hope, A-2.	Toistol, B-3.	Dall, D-2.	Pye, C-5.
Seventh, or Arctic district.....	3,333	Icy, A-3.	Tonki, C-5.	Deer, D-2.	Rat, A-9.
Total.....	31,795	Icy, C-5.	Trinity, C-5.	Dolgol, C-2.	Revillagigedo, C-9.
		Igvak, C-4.	Two Headed, C-5.	Donglas, C-2.	Sand, B-2.
		Iktu, C-4.	Ugat, C-5.	Duke, D-9.	Sannak, D-3.
		Ikolik, C-5.	Unalashigvak, C-4.	Dundas, D-2.	Seal, C-4.
		Kashurok, C-5.	Uyak, C-5.	Egg, B-3.	Segum, A-10.
		Kanarak, C-4.	Vancouver, B-2.	Edlin, C-9.	Semich, A-4.
		Karuk, C-5.	West, B-1.	Flaxman, A-2.	Semidi, C-4.
		Kayakliut, C-4.	Yaktag, C-7.	Forrester, D-3.	Semiospochnok, A-9.
		Khituk, D-3.		Gareloi, A-2.	Shumagin, C-4.
		Kupreanof, C-4.		Geese, C-5.	Shuyak, C-4.
		Lapin, D-3.		Great Sitkin, A-10.	Simeonof, D-4.
		Lay, A-5.		Green, B-6.	Sitkalidak, C-5.
		Leasarez, D-3.		Hagemeister, C-4.	Sitkinak, C-5.
		Leontovich, C-2.		Hall, I-1.	Sledge, B-2.
		Lewis, A-2.		Hawker, C-2.	South, C-4.
		Lisburne, A-2.		Hawkin, B-6.	Spruce, C-5.
		Low, C-5.		Hazy, C-8.	St. George, C-2.
		Lowenstein, A-2.		Hinchinbrook, B-3.	St. Lawrence, B-2.
		Lutke, D-3.		Igitkin, A-10.	St. Matthew, B-1.
		Manby, C-7.		Jacob, C-4.	St. Michael, B-3.
		Marshall, A-7.		Kadlak, C-5.	St. Paul, C-2.
		Martin, D-3.		Kagalaska, A-10.	Stephens, D-9.
		Martin, C-4.		Kagan, B-11.	Stuart, B-2.
		Menchikof, C-4.		Kalgin, B-5.	Switk, C-4.
		Muzon, D-3.		Kanaga, A-9.	Tagalak, A-10.
		Narrow, C-5.		Katechuk, C-4.	Tanaga, A-2.
		Newenham, C-2.		Kavalga, A-9.	Tigalda, D-3.
		Nome, B-2.		Kayak, C-7.	Trinity Is., C-5.
		Ocean, C-7.		Khondiakoff, C-2.	Tugidak, C-5.
		Ommamoy, C-2.		Khoudoubina, C-2.	Ugashok, D-2.
		Pankof, D-3.		Khoulgon, A-11.	Ulik, A-9.
		Petross, C-2.		King, B-4.	Ullaga, D-11.
		Pellew, B-4.		Kiska, C-2.	Unga, D-4.
		Pillar, C-5.		Kinkdank, C-5.	Umnak, A-11.
		Pitt, A-5.		Knights, B-4.	Unalaska, D-2.
		Prince of Wales, A-2.		Korovin, C-4.	Unavikahak, C-4.
		Providence, C-4.		Kulu, C-9.	Unga, C-5.
		Puget, C-6.		Kupreanof, C-9.	Unimak, C-2.
		Resurrection, C-4.		Little Diomedea, A-2.	Ushugut, C-5.
		Rodney, C-4.		Little Koniasli, C-4.	Walrus, C-2.
		Rodney, B-2.		Little Sitkin, C-5.	Wooded Is., C-6.
		Romanof, B-1.		Marmot, C-5.	Woonawassuk, C-2.
		Romanof, B-2.		Middleton, C-5.	Wrangell, C-9.
		Saritchev, D-3.		Mitkof, C-5.	Wrighton, C-7.
		Semlavin, C-2.		Mitrofan, C-4.	Yakobi, C-3.
		Seppings, A-2.		Montagu, C-6.	Yunaska, A-10.
		Sitkag, C-7.		Nagal, C-4.	Zalesmo, C-2.
		Smith, B-2.		Nakchamik, C-4.	Zayas, D-9.
		Spencer, A-2.		Near, A-8.	
		Spencer, C-2.		Nelson, B-3.	
		St. Augustine, D-2.		North, D-9.	
		St. Eliza, C-7.		Nunivak, B-2.	
		St. Hermogenes, C-4.		Okoinok, C-5.	
				Other, C-2.	

* Money Order Offices. * Post Offices not located on Map.

Aleknagik, C-3.
Becharof, C-4.

ALASKA.

Islands, Lakes, Mountains, Rivers, and Towns.

Islands—continued.

Paul, C-4.
Pinnacle, B-1.
Pribilof, C-2.
Prince of Wales, C-9.
Punuk, B-2.
Pye, C-5.
Rat, A-9.
Revilleigodo, C-9.
Sand, B-4.
Sannak, D-2.
Seal, C-4.
Segum, A-10.
Semichl, A-4.
Semidi, C-4.
Shumagin, C-4.
Sivak, C-5.
Simeoni, D-4.
Sitkalidak, C-5.
Sitkinak, C-8.
Sledge, B-2.
South, C-4.
Spruce, C-5.
St. George, C-2.
St. Lawrence, B-2.
St. Matthew, B-1.
St. Michael, B-3.
St. Paul, C-2.
Stephens, D-9.
Stuart, B-2.
Sutwik, C-4.
Tagalakh, A-10.
Tanaga, A-9.
Tigalda, D-3.
Trinity Is., C-5.
Tugidak, C-5.
Ugamiok, D-2.
Uliak, A-9.
Ulinga, A-11.
Uma, D-2.
Umanak, A-11.
Unaleaka, D-4.
Unavikahak, C-4.
Unga, C-5.
Unimak, D-2.
Ushugut, C-5.
Walrus, C-2.
Wooded Is., C-6.
Woonessanuk, C-4.
Wrangel, C-9.
Wright, C-7.
Yakobi, C-9.
Yunaaka, A-10.
Zalembo, C-9.
Zayas, D-9.

Lakes.

Aleknagik, C-3.
Becharof, C-4.

Lakes—continued.

Iliamna, C-5.
Imuruk, B-2.
Mentasta, B-7.
Naknek, C-4.
Nushagak, B-4.
Rat, A-7.
Selawik, A-3.
Shilokh, B-4.
Tachpuk, A-5.
Tustumena, B-5.
Walker, A-5.

Mountains.

Achiloon Pinnacle, C-3.
Alaskan, B-4.
Aniakchak, A-5.
Black Peak, C-4.
Boundary, A-7.
British, A-7.
Cathul, A-7.
Deviation Peak, A-3.
Devils, A-3.
Four Peaks, C-5.
Franklin, A-4.
Gold, A-5.
Iliamna Peak, B-5.
Jade, A-4.
Kayuk, B-4.
Lionhead, C-9.
Lower Ramparts, A-4.
Makushin, D-2.
Miles Glacier, B-7.
Mt. Becharof, C-4.
Mt. Bendeleben, A-3.
Mt. Blackburn, B-7.
Mt. Chiginagak, C-4.
Mt. Crillon, C-4.
Mt. Drum, B-4.
Mt. Edgcombe, C-4.
Mt. Fairweather, C-3.
Mt. Greenough, A-7.
Mt. Hononitz, B-4.
Mt. Kelly, A-3.
Mt. Kimball, B-7.
Mt. Lituya, C-8.
Mt. Olai, C-4.
Mt. Sanford, B-7.
Mt. Tillman, B-7.
Mt. Wrangel, B-7.
Mulgrave Hills, A-3.
Palisades, A-5.
Pavloff Volcano, C-3.
Progonmia Volcano, D-2.
Rampart, A-7.
Ratsel, A-7.
Red, A-5.
Redoubt Volcano, B-5.
Shishaldin Volcano, C-3.
Snow, A-5.
Spirit, B-7.

Mountains—continued.

Tanana Hills, A-5.
Vesivod Volcano, A-11.
Yukon Hills, A-4.

Rivers.

Allenkakak, A-5.
Ambler, A-4.
Anvik, B-3.
Azoos, B-3.
Bassakakak, A-5.
Big Black, A-7.
Black, B-2.
Bradley, B-4.
Bremner, B-4.
Buckland, A-3.
Cathul, B-4.
Chilka, B-4.
Chisana, B-7.
Chitlocina, B-4.
Chittyna, B-7.
Chittystone, B-7.
Chulitna, B-4.
Coville, A-5.
Copper, B-5.
Custer, A-4.
Dedlikakak, A-4.
Dell, A-5.
Delta, B-5.
Daggethoscah, A-4.
Dyke, B-5.
Fleet, A-5.
Finn, A-3.
Fifty-mile, B-7.
Gakona, B-6.
Gerode, B-6.
Goodpaster, B-3.
Hokuchatna, A-4.
Huestlakatna, A-4.
Ikupkping, A-5.
Iglikalik, A-4.
Imoko, B-4.
Ipewik, A-3.
Joanson, B-4.
Kaknu, B-4.
Kaknu, B-7.
Kaliuna, B-7.
Kandik, A-5.
Kariuk, C-5.
Kashunuk, B-3.
Kassilof, B-5.
Kavilavazak, A-3.
Kayuk, B-4.
Kawleak, A-3.
Kinak, B-3.
Klanarchayak, A-5.
Klatena, B-5.
Klatentakakak, B-5.
Klawasina, B-4.
Knik, B-5.
Koo, A-4.
Kookpak, A-3.

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Kowak, A-4.
Koyuk, A-3.
Koyukuk, A-5.
Kushroo, A-4.
Kuguklik, C-3.
Kukpowuk, A-3.
Kulichavak, B-3.
Kuskokwim, B-3.
Kvichak, C-4.
Liebiging's, B-4.
Little Black, A-7.
Lovena, B-5.
Marokinak, B-3.
Meade, A-4.
Melonikakak, A-5.
Naknek, C-4.
Nashak, A-5.
Nushagak, C-4.
Pimoga, A-3.
Pupupine, A-7.
Raj, A-5.
Robertson, B-4.
Salmon, A-7.
Selawik, A-4.
Slana, B-6.
Soonkakak, B-4.
Stikine, C-9.
Sucker, A-7.
Sushitna, B-4.
Taelat, B-5.
Tahkandik, A-7.
Tanana, B-5.
Taanoto, B-6.
Tatotilinda, B-7.
Tasina, B-6.
Telknell, B-6.
Traodes, A-7.
Tokai, B-7.
Tovikakak, A-5.
Ugagik, C-4.
Ugamiok, C-4.
Unalaklik, B-4.
Volkmak, B-4.
White, B-7.
Whymper, A-4.
Woleik, A-3.
Yukon, B-3.

Towns.

Town	Pop.
Afognak, C-5	409
Alaganik, B-6	46
Anagnak, C-4	
Anvik, B-3	191
Attanak, A-4	
Attenuut, A-4	
Belkoffak, D-3	185
Belle Isle, B-8	
Cape Sabine, A-3	
Chilka, C-8	153

Towns—continued.

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Douglas, C-9	
Eyes, C-5	
Exwik, B-3	
Fort Alexander, C-4	10
Fort Andreadak, B-5	
Fort Cudaby, B-5	
Fort Get There, B-3	
Fort Healy, B-5	
Fort Hessel, B-5	101
Fort St. Michael, B-3	
Fort Weare, A-7	
Fort Wrangel, C-9	516
Ingik, C-4	60
Kogmut Mission, B-4	140
Intikilly, A-3	
Jackson, D-9	105
Kaguyuk, C-5	112
Kalig, B-4	
Kariuk, C-5	113
Katnial, C-4	
Ketchikan, C-9	
Killianoo, C-9	79
Kipmak, B-3	
Klawock, C-9	287
Kodiak, C-5	495
Kongdum, C-4	133
Kutlik, B-3	81
Leather Village, B-4	
Loring, C-9	200
Mary Island, D-9	
Metlakatla, D-9	
Metlakatla, A-3	286
Morshovoi, D-3	68
Nig-a-lek, A-4	
Nikolski, A-11	
Nulato, B-4	118
Nushagak, C-4	268
Old Morshovoi, C-3	
Orea, B-5	
Onalaska, A-11	
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Sandpoint, C-3	
Seward, C-5	
Shageluk, B-3	
Shakan, C-9	
Shaktolik, B-3	
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St. Orlovsk, C-5	
Sutkun, C-4	
Suvorof, C-4	
Taku, C-9	
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Surbina, B-4.
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Tarana, B-6.
Tenzito, B-4.
Tovotikova, B-7.
Tulina, B-4.
Tuknol, B-4.
Tracoea, A-3.
Tukol, B-7.
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Ugashik, C-4.
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Yolkmar, B-6.
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Whymper, A-4.
Wolke, A-3.
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Kaitie, B-4	
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Killimnoo, C-9	79
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Klawock, C-9	267
Kodiak, C-5 *	125
Koglung, C-4	128
Kutik, B-3	31
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Mitchell, A-8	66
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113

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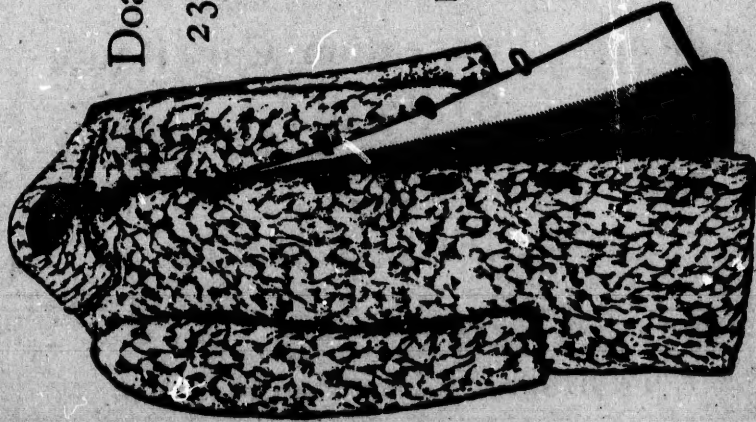
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